2020 Tacoma Intermediate Alpine Climbing Handbook

Introduction

Welcome to the Tacoma Intermediate Alpine Climbing Program!

The Tacoma Intermediate Alpine Climbing Program is comprised of mountaineering training in alpine environments that allow students to develop skills needed for serving as rope leaders on basic climbs and for swinging leads on routes at the Intermediate level (trad rock routes at 5.6/5.7, and/or ~55-degree snow/alpine ice). In addition to technical skills, students develop leadership, self-assessment, and safety awareness skills, which will enable them to lead basic-level climbs and participate on intermediate-level climbs.

In 2020 the Intermediate Program is divided into two tracks or modules that focus on either (1) rock climbing or (2) glacier/alpine climbing, or both. Taking individual modules allows students more time and flexibility to complete the whole program (if desired), or to specialize on just rock or glacier related activities.

About this Handbook

This handbook is your guide to the Intermediate Alpine Climbing Program. It contains what you need to know about the program. In it you will find information about prerequisites, application/registration, curricula, supplementary training (e.g., Wilderness First Aid [WFA], AIARE training, Leadership Seminar), readings, videos and other resources, qualifying as a rope leader or climb leader, and graduation requirements.

The 2020 Intermediate committee

Position	Name	Contact
Chair	Harley Sandoval	hs.mn.sandcast@gmail.com
Rock Module Chair	David Perkins	trishacis2@yahoo.com
Glacier/Alpine Module Chair	Marek Karbarz	mkarbarz@gmail.com
Curriculum/Manual	Gregg Gagliardi	gagliardigregg@gmail.com
Scheduling	Joanne Najdzin	jnajdzin@hotmail.com
Climbing Division Chair	Martin Babare	Mbabare@nventure.com

Attendance is required at the welcome night. Attendance at the skills refresher is optional but strongly recommended. You must pass the practical exam and the conditioner to enroll in either module.

Event	Date	Location	Notes
Welcome night	1/30/2020	Clubhouse	Required
Skills refresher	12/11/2020 1/19/2020	Clubhouse (see listing on clubhouse event calendar)	Strongly recommended
Qualifier: Practical Exam	1/25/2020	Clubhouse	Be prepared
Qualifier: Conditioner Assessment	1/26/2020	Mt Si	Be fit

Note: Some important activities begin well before the courses start regular meetings. Check the schedule below.

Application Process and Sign-Up

The application process starts in the fall with filling out an application on the course website:

https://bit.ly/2020-tacoma-intermediate-climbing-application

To qualify for initial acceptance applicants must meet the following requirements:

- Must be at least 18 years old.
- Have graduated from the Basic Climbing Course or gained Basic equivalency.

Once provisionally accepted, applicants are required to pay a $50 (non-refundable) Qualifier Fee to participate in the Tacoma Intermediate Program Qualifier.

Tacoma Intermediate Program Qualifier

The Tacoma Intermediate Program Qualifier is a 2-day test of an applicant's physical fitness and knowledge of Tacoma Basic Climbing skills. During the test, applicants must demonstrate comprehension of the Critical and Essential skills learned in the Tacoma Basic Climbing Course, and show adequate physical conditioning by completing a hike of Mount Si, to the bottom of the haystack, in under 2 hours with a 35lb pack.

See appendix for details about the intermediate Qualifier exam.

If you pass the Qualifier, you will be admitted into the Tacoma Intermediate Program.

Intermediate qualifier dates:

Practical exam:	Location: Clubhouse. January 25, 2020
Conditioner assessment	Location: Mt Si. January 26, 2020.

Intermediate Student Status

Tacoma Intermediate Student status means that you have been awarded an Intermediate Student Badge on your Mountaineers profile. This badge allows you to take any of the Tacoma Intermediate Program modules, sign-up as an instructor at those Tacoma Basic field trips, sign-up for Intermediate-level climbs (when approved to do so), and access to basic and advanced climbing seminars. *Please be sure to read the Intermediate Student Status policy to understand badge expiration dates and continuation requirements on The Mountaineers website.*

The Modules

Historically, climbing training at the Tacoma Mountaineers has been mainly provided in two courses: The Basic Climbing Course (hereinafter BCC) and the Intermediate Climbing Course (hereinafter ICC). These courses have served us well, having trained hundreds of climbers. However, in the intervening years the climbing community around us has evolved, becoming increasingly more diversified and specialized particularly beyond the basic level.

Modularization allows climbers to train and climb in the discipline(s) they most prefer, which promotes a greater level of personal interest, commitment and participation that arguably benefits new member recruitment and member retention. It also fosters the development of deeper expertise and competence, which arguably enhances safety as well as helps develop cadres of more specialized instructors.

The Tacoma Intermediate Program consists of two tracks or modules;

(a) Rock
(b) Glacier/alpine.

Each module has its own cost, prerequisites, pass criteria (including technical exams), and graduation requirements. Ambitious students who meet the entrance requirements may register for both modules.

Skills Practice Nights and Mentors

Each module contains strategically-scheduled practice nights. Attendance is required to prepare for upcoming field trips and skills testing.

Intermediate students are also encouraged to seek out personal mentors. This is a great way for students to solidify their skills and for experienced members of the community to show them various other tips and tricks (which are typically only learned through necessity or experience). If a student is unsure who might be able to be a mentor, they should reach out to the module chairperson for assistance.

Welcome Night

Both modular courses begin with an informal, but required, welcome night held on 1/30/2020. During this event we will introduce you to the modules and provide you with the information you need to prepare for the courses.

Rock module: overview

The goals of the rock module are to prepare students to serve as rope leaders on basic rock climbs and to swing leads with other intermediate students and grads on intermediate rock climbs.

Ideally, rock climbing training begins in the gym, moves outside to bolted sport climbs on real rock and then proceeds to traditional climbing above placed gear. The idea is simple; first we learn to climb, then we learn to lead climb above easy protection (bolts) and finally we learn to place removable pro as we lead climb. Each step in the process requires a different set of physical and mental skills. These skill sets are best learned one set at a time, in sequence.

In the beginning, just mastering basic climbing movement is a major task. The psychological aspects of climbing above pro provides a new challenge that is most easily and safely met by clipping bolts on lead. Once one has acquired the “lead head” to climb above placed pro, the next challenge is to climb above placed gear on easy trad climbs several grades below one’s onsight ability.

The syllabus below describes the intermediate rock module meetings and their general content. Prior to and during the course, students are also encouraged to spend 2-3 days per week in the climbing gym, building strength and skill, and acquiring gym lead certification. *You will need a valid gym lead card before participating on the first rock field trip.*

In addition to lectures and field trips, evening skills practice clinics are offered. Attendance at the scheduled practice nights is mandatory. Other non-compulsory skills practice nights may be scheduled as needed.

Recommended Reference Books:

Mountaineering Freedom of the Hills (9th Ed.) Seattle: Mountaineers Books, 2017. (aka FOTH)

Luebben,C. *Rock Climbing: Mastering Basic Skills.* Seattle: Mountaineers Books, 2005. (aka Luebben)

Fasulo, D. *Self Rescue.* Guilford: Falcon Guides,2011. (aka Fasulo)

Handout: Multi-point anchors and transitions: See the DropBox link below:
https://www.dropbox.com/s/jl26ib1hj8pel14/Multi-pitch%20Trad%20Anchors.pdf?dl=0

Videos: https://amga.com/rock-videos/

Rock Module Schedule

Lectures begin promptly at 6:30 pm. See the individual field trip plans (appendix) for start times and other details. Prior to the start of the course it is strongly recommended that you review FOTH chapters 12,13 & 14.

Event	Date	Location	Notes
Lecture 1	4/2/2020	Clubhouse	
Practice Clinic 1	4/23/2020	Clubhouse	Study the handout
Rock 1 Field Trip	5/2 & 5/3 /2020	Leavenworth	
Lecture 2	5/6/2020	Clubhouse	
Practice clinic 2	5/12/2020	Clubhouse	
Rock 2 Field Trip	5/16 & 5/17 / 2020	Leavenworth	

Lecture 1. **Location: Club wall April 2, 2020**

Lecturer(s): TBA Email address:

Here you will be introduced to the rock module, informed of gear requirements and begin work on learning rock protection systems and rigging. Towards the end of the evening you may have an opportunity to climb bolted routes on the Tacoma Program Center climbing walls.

It is recommended that you review the following before class:

1. *Freedom of the Hills* (FOTH) chapters 12,13 &14
2. *Rock climbing: Mastering basic skills,* chapters 3 &4.

Contact your instructor for any additional required or recommended readings.

Gear: Bring whatever rock climbing gear you own. Prepare as if this was a basic one-day rock climbing trip. If you own a rope bring it; if not, let the lecture leader know so we can provide a club rope.

Program

Introduction to the rock module
Rock climbing gear (demo)
Protection systems (short lecture)
Rock climbing knots and hitches (review before class)
Anchors and belaying off the anchor in guide mode (demo and practice)
Single-pitch climbing practice using bolts as pro (mock leads and mock falls)

Skills Practice Clinic night 1 **Location: club wall April 23, 2020.**
Leader: TBA Email:

This mandatory meeting is for practicing essential skills introduced at meeting one. Bring your rock climbing gear, including one rope for each pair of students. You will need a guide-type belay device (e.g., Black Diamond ATC Guide, Petzl Reverso).

Rock 1 Field Trip. **Location: Leavenworth, WA. May 2 & 3, 2020**
Leader: TBA Email:

This two-day field trip introduces you to placing nuts, hexes, cams and other removable protection. In addition you will practice building anchors and climbing above placed pro on easy single pitch climbs. *By this time you need to have a lead card from a climbing gym*.

It is recommended that you read the following before the field trip:

1. *Rock Climbing: Mastering Basic Skills*, chapters 3,4 &5
2. Multi-pitch anchors handout.

See your field trip instructor for any additional required or recommended readings.

Program

Trad pro placement practice
Multi-point anchor construction, belaying and swinging leads

Mock leads: Students place trad pro on mock leads

Real leads: Students climb above trad pro on easy single pitch leads (ca. 5.4 to 5.6)

Lecture 2. Small Party Self Rescue. **Location: Clubhouse. May 6, 2020.**

Lecturer(s): Mindy Robert Email:

During this lecture you will gain an appreciation of the importance of small party self rescue to yours and your partners' safety, be introduced to basic rescue rigging skills and rescue procedures.

Before the lecture it is recommended that you read the following:

Fasulo, D. *Self rescue (2nd ed.)*. Chapters 2,3 (p.28), 4, 8, 9 (94-98, 108-111), 10 (122-125, 127-133), 11, 15. See your instructor for any additional required or recommended readings.

Program

Rescue safety perspective

Fasulo's ABCs

Technical skills:

- Knots
- Three belay methods and their advantages and disadvantages
- Demo: Rescuing the second from a direct belay
- Rappels and belay from an anchor
- Rescuing the from a direct belay using terrain
- Rescuing the second from a harness belay using a "technical ledge"
- Leader rescue (optional if time permits

Skills Practice Clinic 2. **Location: Clubhouse. May 12, 2020.**

Leader: TBA Email:

This skills practice night is preparation for the Rock 2 field trip. It is required that you attend in order to solidify your trad climbing skills (anchors, pro, swinging leads) before the field trip. You will need to have these essential skills wired in order to pass the field trip, a requirement for qualifying as a basic rope leader, or swinging leads on intermediate rock routes.

Rock 2 Field trip. **Location: Leavenworth. May 16 and 17, 2020**

On this field trip you will practice what you have learned on the previous meetings and field trips in the context of several short multi-pitch climbs. The goal is to practice, integrate, refine--and later demonstrate--all of the essential skills required to complete a multi-pitch rock route, including rapping the route.

You will spend day two practicing rescue skills introduced at lecture 2.

The goal of this field trip is to help you integrate your rock skills sufficient to begin leading easy fifth class basic rock routes (ca. 5.4-5.6) and swing leads with other climbers on intermediate rock routes.

Before this field trip it is recommended that you read *Luebben* chapters 9,10 &11, and review the assigned readings in *Fasulo*. See your instructor for any additional required or recommended readings.

Program

Day 1. Multi-pitch trad
Leader: Jim Gawel Email:

Numerous short multi-pitch practice climbs
Anchor construction
Leading on pro
Swinging leads
Multi-pitch rappelling
Final assessment climb

Day 2. Self rescue
Leader: Mindy Roberts Email:

During the field trip you will practice the techniques introduced at lecture 2 (see the field trip plan for details).

Note: Successful completion of the rock module up to this point, *in part*, qualifies the student to serve as a rope lead and to swing leads with other qualified intermediate students.

Intermediate Rock Module Graduation Requirements

- ❑ Pass the module (all single and multi-pitch assessments)
- ❑ Be current on Wilderness First Aid
- ❑ Be current on navigation training
- ❑ Serve as an instructor at Basic Course Field trips: FT1 Prep, FT1, FT2, FT 4 Prep, FT 4, FT 5
- ❑ Complete one leadership activity
- ❑ Complete one community or stewardship activity
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Serve as a rope leader on 3 Basic rock climb
- ❑ Complete 2 Intermediate rock climbs
- ❑ Submit a graduation application (found on the course website in the course materials tab) to the Intermediate Climbing Committee Records Chair and Chair.

Intermediate Glacier/alpine module: overview

Leading glacier and alpine climbs requires some scrambling and minimal rock leading skills. In the past these skills were acquired incidentally during an intermediate course that combined glacier and rock training into a single course. Modularization requires adding a day of scramble/easy rock lead training so that glacier/alpine module graduates can competently lead routes that include sections of 3rd to 4th class rock.

The glacier/alpine module also includes a weekend of alpine ice training. Although this training is not required to serve as a rope leader on basic glacier and alpine climbs, it may be required on some intermediate alpine and glacier climbs and it is certainly required on all intermediate ice climbs.

The goals of the glacier/alpine module include developing sufficient skill to serve as a rope leader on Basic glacier climbs and sufficient skill to swing leads on intermediate glacier, mountaineering and ice climbs.

Glacier/alpine Module Schedule

Lectures begin promptly at 6:30 pm. See the individual field trip plans (appendix) for start times and other details. Note: Glacier Field Trips 3 & 4 are offered on alternate dates. You are only required to attend one of the two alternate field trip dates.

Event	Date	Location	Note
Lecture 1	2/6/2020	Clubhouse	Complete readings
Lecture 2	2/12/2020	Clubhouse	Study the video
Practice clinic 1	2/25/2020	Clubhouse	
Glacier/alpine Field Trip 1	3/7/2020	Little Si	Carpool is essential
Practice Clinic 2	3/12/2020	Clubhouse	
Glacier/alpine Field Trip 2	3/14 & 3/15 /2020	Crystal Mt: Bullion Basin	
Glacier/alpine Field Trip 3	8/1 & 8/2 /2020 Or	Mt Rainier: Flett Glacier	
Glacier Field Trip 3 (Alt date)	8/8 & 8/9 /2020	Mt Rainier: Flett Glacier	
Lecture 3	7/30/2020	Clubhouse	
Practice Clinic 3	8/13/2020	Clubhouse	
Glacier/alpine Field Trip 4	8/15 & 8/16 /2020 Or	Mt Baker: Coleman Seracs	
Glacier Field Trip 4 (Alt date)	9/5 & 9/6 / 2020	Mt Baker: Coleman Seracs	

Recommended Reference Books:

Mountaineering: Freedom of the Hills (9th Ed), Part IV & Part V. (aka FOTH)

Houston, M & Cosley, C. *Alpine Climbing: Skills to Take You Higher*, 2004. Seattle: Mountaineers Books (aka H&C)

Gadd, W. *Ice & Mixed Climbing: Modern Technique*, 2004. Seattle: Mountaineers Books. (aka Gadd)

Recommended Video:
Alpine Ice: Jeff Lowe's Climbing Techniques Video, Jeff Lowe: Arctic Fox Productions.

Lecture 1: Glacier/alpine travel **Location: Evening lecture at the clubhouse. February 6, 2020.**
Leader: Gregg J Gagliardi Email: gagliardigregg@gmail.com

Here you will be introduced to the module, learn what you gear you need for a glacier/alpine climb, review snow camping, study trip planning details, learn about different kinds of snow anchors, and learn glacier travel methods.

Before the lecture starts it is recommended that you start reading H&C, chapters 2,3,4 & 6 (196-232), 7(254-277). It is also recommended that you complete this reading before field trip 2. See your instructor for any additional required or recommended reading.

See the link (below) for a Powerpoint presentation of the lecture:

https://www.dropbox.com/s/y0t7e1y84n2527r/Intermediate%20snow%20travel%20lecture%202.pptx?dl=0

Program

Introduction to the module
Glacier/alpine travel gear (short demo)
Snow camping: shelter, clothing, food, safety
Trip plans/ time and navigation plans
Snow anchors, rigging and belaying
Winter/inclement weather navigation (emphasis on white-out navigation methods)
Weather decisions (cloud formations, barometer readings and changes)
Managing crevasse crossings

Lecture 2: Crevasse rescue **Location: Tacoma Clubhouse. February 12, 2020**
Lecturer: Gregg J. Gagliardi Email: gagliardigregg@gmail.com

This evening meeting is devoted in its entirety to managing crevasse accidents. Much of the evening will be spent practicing a crevasse hauling system: The 6:1 Drop Loop System. Study the video. It is strongly recommended that you begin practicing the hauling technique seen in the video on your own or with a buddy before the lecture.

Read the following before class: Handout on the 6:1 drop loop procedure (see appendix):

Watch the Six to one drop loop video: https://www.youtube.com/watch?v=azNTmiQCS7M&feature=youtu.be

Program

Crevasse accident response
6:1 drop loop system

Skills Practice Clinic 1. **Location: Clubhouse. February 25, 2020.**
Leader: Gregg J. Gagliardi Email: gagliardigregg@gmail.com

During this meeting we will practice anchor rigging and continue to practice the 6:1 drop loop system. Bring your glacier travel gear, a rope and a selection of runners and carabiners for constructing anchors, including your cordelette and belay device (BD ATC or Petzl Reverso).

Field Trip 1: Managing "3rd class" terrain. **Location: Little Si or other suitable crag. March 7, 2020**
Leader: Gregg J. Gagliardi Email: gagliardigregg@gmail.com

On this field trip you will learn methods for managing travel on "3rd class" terrain (a term also commonly used for 4th class and low fifth class terrain). You will learn how to use hand-lines and ropes, learn how to anchor natural features, and learn several useful belay anchors, and belaying and lowering methods.

Prior to the field trip read the handout "Managing 3rd class terrain" (see handout section of this manual).

Program

Versatile strategies for leading "3rd class" terrain
Using hand-lines and ropes
Useful knots and hitches
Anchored and unanchored belays, intermediate protection with natural anchors
Rappelling 3rd class terrain
Lowering and assisting a follower on 3rd class terrain

Skills Practice Clinic 2. **Location: Clubhouse. March 12, 2020.**

Leader: Gregg J. Gagliardi Email: gagliardigregg@gmail.com

This skills practice night is preparation for Field Trip 2, an important part of which is demonstrating proficiency with crevasse rescue. Here we will also review skills introduced at Lecture 1. Passing the field trip is required to advance to glacier/alpine rope leader status.

Field trip 2. Glacier/snow travel. **Location: Bullion Basin, March 14 and 15.**

Leader: TBA Email:

On this field trip we cover essential glacier travel skills. The purpose of the field trip is to prepare you for your first glacier rope leads. Successful completion of this field trip is required to serve as a glacier rope leader. You will be tested on your mastery of the 6:1 drop loop system for crevasse rescue.

Prior to field trip 2 it is recommended that you have completed the previously recommended readings in *H&C*.

Program

Day 1:

Expedition camp set-up (tents, protective walls, cooking)
Snow anchors practice: pickets, ice axe anchors, bollards.
Belaying and lowering techniques
Rappels
Roping up versus climbing unroped (short lecture)
Roping up (Kiwi coils, inter-climber distance, isolation loops, knotted versus unknotted rope)
French technique practice (ice axe and crampon use on moderately steep terrain)
Other content as taught by the field trip leader and instructors

Day 2:

Crevasse rescue practice and final assessment: 6:1 drop loop system.
Introduction to the Double Mariner haul (7:1) and/or Team C haul (optional following passing the 6:1 drop loop assessment)).

Note: Successful completion of the glacier/alpine module up to this point, in part, qualifies the student to serve as a basic glacier rope leader.

Lecture 3: Alpine Ice Lecture. **Location: Clubhouse July 30, 2019**

Lecturer: TBA Email:

Tonight's lecture focuses on climbing hard snow and ice. The goal is to prepare you for your first experience climbing steep hard snow and ice on Field trip 3, and the steeper hard ice on the Lower Coleman Glacier on Field trip 4.

Prior to this lecture and upcoming field trip, it is recommended that you read the following: H&C chapters 6 (232-249) &7; Gadd chapters 1,3,4 & 5. Also watch the video (link below).

Video:

http://www.youtube.com/watch?v=36dOEOFZW1k

Program

Specialized ice gear
Ice screws and ice anchors
Steep ice climbing technique

Field trip 3: Hard snow and alpine ice. **Location: Rainier, Flett Glacier. Aug 1& 2 or Aug 8 & 9, 2020.**

Leader: TBA Email:

This is your introduction to traveling on terrain that includes hard snow and alpine ice. You will review anchors and belay methods, review and practice French technique (hopefully on hard ice), and complete a short multi-pitch ice climb. Some years there is no hard ice, in which case practice and climbing are on hard, steep snow.

Prior to this field trip, it is recommended that you review the reading assigned for lecture 1. It is also recommended that you read the material about the 2002 Mt. Hood climbing accident posted at the links below.

http://www.traditionalmountaineering.org/Report_Hood_Bergschrund.htm#analysis

http://publications.americanalpineclub.org/articles/13200308000/Fall-into-Crevasse-Unable-to-Self-Arrest-Inadequate-Protection-Poor-Position-Oregon-Mount-Hood-Standard-Rout

Program

Roped versus unroped climbing (discussion of the 2002 Mt. Hood accident)
Snow and ice anchor practice (hard steep snow and ice)
Belay review and practice (hard steep snow and ice)
French technique review and practice (hard steep snow and ice)

Multi-pitch experience climb (Observation Rock)

Skills Practice Night 3. **Location: Clubhouse August 13, 2020**

Leader: TBA Email:

Here you will have an opportunity to practice steep ice climbing techniques on an artificial ice climbing wall. Bring your ice climbing gear, including your helmet and belay device.

Field Trip 4: Alpine ice practice **Location: Coleman seracs, August 15 &16 or Sept 5&6, 2020.**

Leader: TBA Email:

This field trip is an introduction to climbing steep, hard alpine ice of the type found on typical Cascade ice climbs, alpine climbs, and some glacier climbs. During the field trip you will learn to use ice screws, learn to climb with ice tools, learn the footwork and cramponing needed for steeper ice, practice steep ice climbing movement, practice mock leading and leading grade 2 and grade 3 ice, test your limitations on grade 4 and grade 5 ice routes (top roped) and undergo assessment swinging leads with a partner on a grade 2 ice route.

Gear note: See the gear list in the trip plan. Some of this gear (ice tools and ice screws) is expensive. There are a limited number of club ice tools that are available for use. You may be able to borrow, or purchase used, ice screws from other Tacoma Mountaineers who have completed the ice field trip.

Make sure your tools and crampons are sharp (See Will Gadd's book [in the reading list] on how to sharpen crampons and tools). Also make sure that your crampons fit your boots and that you have them adjusted for maximum front point length. Short front points are an all too common obstacle to effective front pointing. You don't need to purchase specialized ice climbing crampons. Ordinary crampons with dual horizontal front points will work fine as long as they are sharp and properly adjusted for front point length.

Program

Day 1:

Anchor building using ice screws and ice threads
Belaying followers and leaders
Ice tool swing practice
Front-pointing practice
Steep ice movement practice: ascent, traverse, descent
Mock leads

Day 2:

More mock leads, if needed

Assessment:

Swing leads on two pitches of grade 2-3 ice

Rappel the route with partner

Repeat climb, switching roles

Intermediate Glacier/Alpine Module Graduation Requirements

- ❑ Complete all glacier/alpine module lectures and field trips
- ❑ Be current on Wilderness First Aid
- ❑ Be current on navigation
- ❑ Serve as an instructor at the following Basic Course field trips : FT1 Prep, FT1, FT2, FT3, FT6 prep, FT6, FT7.
- ❑ Serve as a rope lead on 3 basic glacier climbs
- ❑ Complete one leadership activity
- ❑ Complete one community activity or stewardship activity
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Complete AIARE level 1
- ❑ Complete 2 Intermediate glacier (Mountaineering) or ice climbs
- ❑ Submit a graduation application (found on the course website in the course materials tab) to the Intermediate Climbing Committee Records Chair and Chair

Community Activity and Stewardship Requirements

The Intermediate Committee believes it is important to give back, not only to our courses, but to our communities and land as well. Each student is required to participate in one of these activities while enrolled.

Community activities are activities that benefit the Tacoma Mountaineers community. These activities typically include instructing at other activities (e.g., Scrambles, Navigation, Sport Climbing, etc.) field trips.

Stewardship activities are conservation-related activities. The types of qualifying activities are pretty open-ended; trail maintenance, work in local, state, and national parks, wilderness areas, etc. To count, these activities need to be coordinated with the managers of the sites where the work parties will take place. Washington Trails Association holds trail maintenance activities year-round.

Guidelines for Community and Stewardship Activity Credit:

- Community activities must benefit the Tacoma Mountaineers climbing community.
- Students are responsible for being signed up for the activity on the Mountaineers website
- Students must provide documentation of participating in a stewardship activity if done outside of the Mountaineers.

The Intermediate Committee has final ruling on whether a given activity qualifies for stewardship or community activity credit(s). For questions regarding credit, contact the Intermediate Climbing Committee before participating in the activity.

Teaching Requirements

As veteran climbers know, teaching others is a powerful way to deepen and solidify one's mastery of climbing skills, not to mention a good way to refresh perishable skills, and a means for staying current on newly emerging techniques.

As part of their training, rock module students are required to serve as instructors at Basic Climbing Course (BCC) rock field trips; glacier/alpine module students are required to serve as instructors at BCC snow and glacier field trips (see table below). Students from both modules are required to participate at Field trip 1 prep and Field trip 1.

Special note: *Some Basic Course field trip dates actually precede the official start of the rock module.*

Some basic field trips are offered to basic students on alternative dates. Intermediate students are required to instruct *on only one* of the alternative field trip dates.

2020 Basic Course Field trips and instruction requirements (color coded by module).

See the Basic Course event listings for additional details and sign up.

Event	Dates	Requirement	Note
Field trip 1 prep	2/15 or 16, 2020	Both modules	Dates precede rock module start
Field trip 1	2/22 or 23, 2020	Both modules	Dates precede rock module start
Field trip 2	3/21 or 22, 2020	Rock module	Dates precede rock module start
Field trip 3	3/28-29, 2020	Glacier module	
Field trip 4 prep	4/8 or 9, 2020	Rock module	
Field trip 4	4/11 or 12, 2020	Rock module	
Field trip 5	5/8 or 9 or 10, 2020	Rock module	
Field trip 6 & 7 prep	5/30 or 31, 2020	Glacier module	
Field trip 6 & 7	6/6 & 6/7, 2020	Glacier module	

Equipment for the Intermediate Course

A few words about the equipment needed for the Intermediate Course. Although some of the equipment used on Intermediate Climbs is for comfort or convenience, much of it is absolutely necessary for safe climbing. Be aware that much of intermediate climbing is a combination of efficient technique and the use of properly designed equipment, whether the medium is ice, rock or snow. What may appear to be a "good buy" in the store can turn out to be an aggravation or even a hazard on a climb. Good equipment is a pleasure to use and justifies many times over the difference in initial cost from a "bargain". Whenever possible, buy the best equipment you can afford—it will pay off in the long run.

In general, when evaluating equipment, consider the following factors: function, weight, versatility and durability. Knowing how you will use an item will dictate the features that are most important. Simplicity in form and function are often the key to well-designed equipment. Try selecting equipment that will serve you well in a variety of situations so you need not have one thing for every purpose.

Keep in mind that since equipment necessary for climbing at the intermediate level is more specialized and demanding, it is often costly. If you are in doubt as to what type of specific item you want, borrow or rent one and try it out. Swap with other people at field trips to get a feel for different designs. Only after using an item will you become fully aware of its benefits and limitations, and what features are most important.

Look for used equipment but *caveat emptor.* Avoid purchasing gear with an uncertain history that is commonly subjected to damaging forces (e.g., ropes, runners, carabiners, rock pro). Many equipment shops have bulletin boards for their patrons. Some of the best deals are at used equipment sales. The Tacoma Basic Climbing Committee will hold a used equipment sale —- check it out. Seattle and Olympia branches have their own used equipment sale.

Shop around before you make a major purchase. Prices vary substantially from store to store, and many items can be found on sale at regular intervals. Browsing some of the different magazines will show a wide range of prices - beware that shipping, duty and insurance charges may be added to the advertised prices. Also beware of counterfeit gear:

https://www.climbing.com/gear/counterfeited-how-illegal-knockoffs-harm-outdoor-brands/

http://www.outdoorsafetyinstitute.com/index.php/news/single/counterfeit_petzl_climbing_gear/

Be sure to visit Alan Arnette's website and the *Outdoor Gearlab* website for recommendations on alpine climbing clothing, camping gear and technical gear:

http://www.alanarnette.com/climbing/gearlist.php
https://www.outdoorgearlab.com/climbing

Equipment list color-coded by module:

Red = required for the rock module;
Blue = required for the glacier/alpine module;

Black = required for both modules

Before buying new gear, first take an inventory of your Basic Course clothing and gear and then see what you need to add by consulting the gear list below. Consult your instructors and other experienced climbers for assistance on gear choices. Some specialized climbing stores (ProMountain Sports, Feathered Friends and Second Ascent; all located in Seattle) can assist you. Some REI staff can also be helpful but the Tacoma store is limited in the kind and variety of technical gear that they carry. You will find a greater selection at the Flagship store. While you are there, walk across the street and visit Feathered Friends or drive a short distance to Pro Mountain Sports and/or Second Ascent.

- **Climbing Harness.** (UIAA approved; lighter weight harnesses (e.g., Black Diamond Couloir) are okay for snow/glacier practice and climbs, but not for rock climbs)
- **Rope –**Dynamic kernmantle 9.2 to 10 mm diameter is good for general use. Some climbers use 9 mm ropes, or thinner, for glacier and ice climbs, climb using a two rope system, or double one rope if necessary on steep technical rock sections. A 60 meter rope is usually preferred over a 50 meter rope for rock climbs, as it allows longer leads and fewer rappels, saving time on longer climbs. Also, if the rope will be used in wet conditions (likely given that we live in the Pacific Northwest), it should have a dry treatment. Wet ropes are much heavier and not as strong as dry ropes. *Do not buy a used rope***.** Be sure the rope is UIAA approved. Purchase of a rope is recommended, but if you don't have one you can usually pair up with someone who does. One rope per two climbers is adequate for field trips and most climbs.
- **Rappel and Belay Device –**In order to belay directly from the anchor, you will need a guide-type plate device such as the Black Diamond ATC-Guide or the Petzl Reverso. Assisted braking devices (e.g. Gri Gri) are not an approved substitute for a guide type plate device, although some climbers carry one in addition to a plate device for some climbs.
- **Chocks (nuts, hexes, tricams).** A set of nuts and medium to larger hexes is a good starter set. Tricams (especially the pink and red) are often useful for those willing to learn how to place and remove them. Consider adding a set of offset nuts later after you have gained more experience placing nuts.
- **Cams.** These are expensive, and getting more expensive every year. Start with Black Diamond Camelot sizes #1,#2, and #3 or their equivalent in other brands. You can later add larger and smaller cams, including micro cams and TCUs, when you have more experience. FYI: most Yosemite climbs up to 5.11 in difficulty were climbed before cams were invented! Learn to place solid nuts; you won't regret it.
- **Helmet -** Make sure the helmet you buy is designed to be used for climbing and has been approved by the UIAA. Some of the newer, more expensive helmets are surprisingly light. This year (2019) some companies are introducing helmets, similar to ski helmets, that are designed to protect against side and rear impact forces against the head in addition to impact forces against the top of the head. https://www.climbing.com/gear/how-do-climbing-helmets-protect-your-head-petzl/
- **Snap link carabiners (15).** Light is right. Keylock oval carabiners are great for racking nuts.
- **Locking carabiners (6).** Include a few smaller lockers along with medium size lockers.
- **Extra-large HMS locking carabiner (Pearbiner)** for use with your belay device and for Munter hitches **(1).** Auto-lockers are preferred but not required.
- **Runners: (9** single length; **6** double length**).** Sewn or DIY tied webbing.
- **Leader tie-off (2).** 13-15" tied loop of 6mm accessory cord. Sterling Hollowblock is desirable but a bit pricey.
- **Gear Sling -** Optional. Can be made from webbing or purchased. Specially made gear slings have a wide padded strap which makes it more comfortable across the shoulder. Many rock climbers prefer to carry gear on their harness.

- **Daisy chain, PAS (1)**.Useful for pre-rigged rappels. A double length nylon runner with an overhand knot in the middle works just as well, and it has other uses.
- **Cordelette (1-2)** 7 mm nylon accessory cord, or 5.5mm-6.0mm Tech cord). 22 ft. is a good length. Make sure that the cord is soft and pliable rather than stiff. You may ultimately want two cordelettes for leading basic rock climbs; one for the bottom belay anchor and one for the top belay anchor.
- **Chock Pick (1)**
- **Rock Shoes.** Comfortable is best for long days and long routes. Stay away from radically tight shoes with downturned toes of the type used by some gym climbers, boulderers and hard sport climbers.
- **Bivy bag or lightweight tent**
- **Ice axe (1)** The axe that you used for the Basic Course is adequate.
- **Crampons.** The crampons that you used for the Basic Course are adequate
- **Wands** (**10** or more depending on the route). Can be homemade.
- **Shovel (1)**
- **Ice screws (4-5)**. Three or more 16cm-19cm, one 22cm for ice threads**)**
- **Pickets (2-3**). Select pickets with pointed ends and protective steel caps. Yates and MSR are good choices.
- **Petzl Tibloc (1)**. Used for crevasse rescue (A BD MicroTraxion is even better but considerably more expensive.

Optional Equipment for Rock Climbs, Rock Rescue and Crevasse Rescue:

- **Petzl Gri Gri (**A useful addition to your regular belay device on rock climbs; not a substitute for it)
- **BD MicroTraxion (**well worth the investment for all sorts of hauling and rope ascent tasks. **Kong Roll N Lock** also works well but it doesn't include a high efficiency pulley.

Optional Equipment for Ice and Hard Snow Practice and Glacier/Ice Climbs:

- **Avalanche Rescue Beacon -** The club may supply beacons for some field trips, but they are not generally available for personal loan. If you plan to do much climbing in early Spring and Winter conditions or backcountry skiing, consider purchasing this valuable item. Consider this a future budget item. Climb leaders may require them on some field trips and climbs.
- **Ice tools (2).** These are very expensive. It is strongly recommended that you borrow or rent ice tools until you gain considerable experience ice climbing. The club has a small collection of tools that you can borrow on a first-come-first-served basis. Before buying ice tools, it is recommended that you attend an ice climbing festival (e.g., Ouray), where you can try out different tools to determine which style and brand best fit your needs.

AIARE Level 1 and Avalanche Awareness Seminar

Level 1 Avalanche Training certified by the American Institute for Avalanche Research and Education (*AIARE*) is required for all snow and ice related activities. This course and training is done independent of the Intermediate Program. AIARE-certified training is offered at least once per year by the Tacoma Mountaineers. Students may take their AIARE-certified training from other organizations as well. AIARE Level I equivalent certification such as from the Canadian Avalanche Association (CAA) or National Ski Patrol (NSP) may be accepted. To explore alternatives or apply for equivalency please contact the Tacoma Avalanche Committee.

The Rock Module does not require AIARE 1, but does require an Avalanche Awareness Seminar, which should have been completed to graduate from the BCC. The seminar is typically sponsored by all branches and put on in the winter and spring months.

Outdoor Leadership Seminar

The Outdoor Leadership Seminar is a graduation requirement and should be taken as early as possible by all Intermediate students so they become better teachers, leaders and team members.

The Mountaineers offer a one-day Outdoor Leadership Seminar at least once per year. Participation in the seminar is a requirement for those applying to become a climb leader. Please see The Mountaineers' website for current course offerings.

Wilderness First Aid

A current Wilderness First Aid certification is required for participation on all climbs as well as graduation from the Intermediate Climbing Program. Students need to maintain their Wilderness First Aid certification throughout the course to be considered active. There are multiple ways to meet this requirement: Wilderness First Aid (WFA) and Mountaineering-Oriented First Aid (MOFA) are offered through the Mountaineers; Wilderness First Responder (WFR), Wilderness EMT (WEMT) and Remote Medicine for Advanced Practitioners (RMAP) are nationally recognized certifications available from independent training organizations that go above and beyond basic first aid training for those who want it. The Climbing Committee accepts these five certifications: WFA, MOFA, WFR, WEMT, RMAP. Other backcountry or remote medicine certifications may be accepted as equivalent to WFA certification; contact Tacoma WFA leadership for more information.

Private Climbs

Students sufficiently experienced, and authorized as leaders to do so, are encouraged to organize and lead basic or intermediate level climbs with their friends or fellow students. It is expected that a number of private climbs will be listed on any application for intermediate module graduation as they provide invaluable opportunities for learning and honing leadership skills. However, private climbs do not count towards the required number of club climbs.

Emergency Procedures

On occasion, a party may be late returning home. Climbers may be forced to bivouac for an additional night and be unable to return on schedule. This is not necessarily an indicator of an emergency situation. It is imperative that students advise their relatives, close friends, co-workers or boss of their plans and the proper procedure for reporting an overdue climber**.** *Do not promise to return by a certain time of day;* people have been known to panic when a climber fails to return on time. Climbing parties are often late in returning home.

A written emergency contingency plan, with all relevant contact information, is required for all climbs. It belongs in your climbing field-notebook.

In the event of an emergency requiring rescue, the *first* call should be to rescue providers. Members of all branches/committees with a trip emergency should:

1. First call ***911***, and ask to be transferred to the Sheriff of the county they are in (or National Park Service for Rainier, Olympics, & North Cascades) for a Search and Rescue (SAR).
2. Second notify the club by calling the Mountaineers Emergency Line: ***206-521-6030***

If a climber has not returned or telephoned by *noon* of the day following a scheduled climb, family or friends should first call 911 and then contact *The Mountaineers Emergency Line above.*

Appendix 1: Climb leader pathways & graduation requirements

Climb Leadership Development Requirements

Leadership development is a major focus of the Intermediate Program, and a requirement for graduation. Each student is required to participate in a leadership development activity during their enrollment. Leadership is essential for being self-sufficient and safe in the mountains. Leadership skills are comprised of technical competence, interpersonal skills, and the ability to make sound decisions.

Interpersonal skills include self-awareness, self-leadership, clear, open and honest communication with the climbing party, being patient and considerate, the ability to gain the trust and followership of the climbing party, as well as humility and a sense of humor. Students need to be self-directed and interested in becoming better leaders in order to improve their interpersonal skills. Teaching at beginner-level field trips and acting as a rope lead on Basic climbs are activities that foster the development of these skills.

Good judgement comes with experience, and experience takes time. Going into the mountains frequently, for extended periods of time, and with different groups of people helps with gaining this experience. Often it is close-calls or near-misses that provide the learning environment. It is also possible to learn from the bad experiences of other climbers. “Accidents in North American Climbing” is a yearly publication by the American Alpine Club depicting actual climbing accidents that is intended exactly for this purpose.

Below is a list of activities in which you can participate to obtain leadership credit. Qualifying leadership activities include the following:

Lead a Basic field trip
Lead an intermediate field trip
Serve on a climbing committee
Become a Basic rock climb leader (for rock module students)
Become a Basic glacier climb leader (for glacier/alpine module students)

Students are also required to complete the Becoming A Mountaineers Leader eLearning Course:

https://www.mountaineers.org/about/vision-leadership/board-of-directors/committees/elearning/course-templates/leadership-the-mountaineers/becoming-a-mountaineers-leader-the-mountaineers-2018

The Intermediate Committee has final ruling on leadership credits. For questions regarding receiving credit for leadership activities, contact the Intermediate Climbing Committee chair well in advance of the date of the activity.

Climb Leader Pathways

Note: *Requirements for climb leadership are undergoing review by The Mountaineers Progressive Climbing Education (PCE) Leadership Committee, meaning that that some leadership status requirements could change. The section below describes the requirements in force as of October 2019. These may be revised for 2020 as needed.*

Becoming a climb leader is not a necessary step in order to graduate from the Intermediate Course. While we encourage students to consider this as a way to give back to The Mountaineers, it is a personal choice. Taking less experienced climbers into the mountains is a major responsibility and we want our leaders to make a deliberate decision to do so.

Basic Rope Leader Status

Our new training model for rope and climb leadership allows you to pursue a specialty in rock or glacier/alpine climbing. In order to pursue rope leadership for either kind of climb you must have successfully passed the relevant module and possess current badges for the following courses:

General Rope Lead Requirements for both modules

- ❑ Current Navigation badge
- ❑ Current WFA or equivalent badge

Basic Glacier/Alpine Rope Lead Requirements

- ❑ Pass the Intermediate Glacier Alpine Module up to and including field trip 2 (Glacier/snow travel)
- ❑ Instruct at all required Tacoma Basic field trips
- ❑ Attain AIARE I certification
- ❑ Climb leader approval

Basic Rock Rope Lead Requirements

- ❑ Pass the Intermediate Rock Module
- ❑ Instruct at all required Tacoma Basic field trips
- ❑ Complete an Avalanche Awareness Seminar
- ❑ Climb leader approval

Becoming a Climb Leader

Mentored Lead Climbs

A minimum of two (2) mentored lead climbs in your area of specialization (rock or glacier/alpine) is a prerequisite for applying to become a full climb leader in that venue. Mentored leads are performed on Basic climbs, as one important aspect under assessment is the mentored leader's ability to lead and take care of less-experienced

climbers in the mountains. It is recommended that students act as an assistant leader on a few climbs before acting as mentored leader. Any active climb leader in good standing can serve as your mentor. Climbs done as assistant or mentored leader also count toward the requirements for graduation from the Intermediate Program.

As a mentored leader, students are expected to:

1. Organize and plan the activity. This does not include setting up the activity on The Mountaineers' website since most students do not have the necessary permissions to do so. However, the mentor should list the mentored leader as such and make them the point of contact for the activity.
2. Make all the pre-climb arrangements, such as informing the climbing party about gear requirements, providing directions to the trailhead, checking the weather and trail conditions, checking with the ranger station to see if permits are needed, etc.
3. Conduct the trailhead briefing (and post-climb debriefing) and assign roles such as the first aid leader.
4. Make trail/route decisions, set the pace and lead the climbing party.
5. Ensure the well-being of the climbing party, including making sure that everybody is eating and drinking, is dressed appropriately, gets sufficient rest, etc.

Barring an emergency, the mentor is generally a follower, like any other climbers on the climb; although the mentor is still ultimately responsible for the climb. Students are encouraged to consult with the mentor if they have questions, and the mentor may provide input or feedback at any time, or even take on full leadership if necessary. After the climb, the mentor will provide feedback to the student.

Applying for Basic Climb Leader Status

Applications for Basic Climb Leader status must be emailed to the Basic Committee Records Chair, cc the Basic Chair and Intermediate Chair. Be sure to include "Application for Basic Climb Leader" in the subject heading. Applicants need to submit their mentored climb evaluation form(s) which must be completed by climb leaders in good standing with The Mountaineers along with their application. The Intermediate Committee will inform the Basic Committee on your current Intermediate Student Records and provide a recommendation based on that information. The Basic Committee has final authority on granting Basic Climb Leaders Status.

Basic climb leader Checklists

Basic rock climb leader:

- ❑ Complete the Intermediate Rock Module
- ❑ Complete 2 mentored Basic rock climbs
- ❑ Complete the Outdoor leadership Seminar
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Possess up to date WFA, AIARE, and Navigation badges
- ❑ Basic Committee approval

Basic glacier/alpine climb leader

- ❑ Complete the Intermediate Glacier/Alpine Module

- ❑ Complete 2 mentored Glacier climbs
- ❑ Complete 1 mentored Basic Alpine climb
- ❑ Complete the Outdoor Leadership Seminar
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Possess up to date WFA, AIARE and Navigation Badges
- ❑ Basic Committee approval

Applying for Intermediate Climb Leader Status

Applications for Intermediate Climb Leader status must be emailed to the Intermediate Committee Records Chair and cc the Chair. Be sure to include "Application for Intermediate Climb Leader" in the subject heading to ensure the email gets reviewed quickly. Please be patient and give the Intermediate Committee at least 2 weeks to respond.

Intermediate Rock Leader: Checklist

- ❑ Graduate from the Intermediate Rock Module
- ❑ Complete the Outdoor Leadership Seminar
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Possess up-to-date badges in WFA, and navigation
- ❑ Complete 3 *additional* intermediate rock climbs

Intermediate Ice Leader: Checklist

- ❑ Graduate from the Intermediate Glacier/alpine Module
- ❑ Complete the Outdoor Leadership Seminar
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Possess AIARE Level 1 certification, and current WFA and navigation badges
- ❑ Complete 3 Intermediate Ice Climbs

Intermediate Mountaineering Leader: Checklist

- ❑ Graduate from both the rock module and the glacier/alpine module
- ❑ Complete the Outdoor Leadership Seminar
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Possess AIARE Level 1 certification, and current WFA and navigation badges
- ❑ Complete 3 intermediate mountaineering climbs

All Intermediate Leader statuses are also contingent on the following:

1. Demonstration of leadership skills and sound judgment;
2. Intermediate Committee Approval.

Review Process

1. The Climb Leader Application Form must be submitted to the Intermediate Committee Records Chair, cc the Chair.
2. The Records Chair announces the application via email to the members of the Climbing Committee.
3. The application is validated against club records and reviewed by the Committee.
4. The Committee contacts the references named in the application.
5. If all of the feedback for the respective candidate is in support of adding them to the climb leader list, the Intermediate Climbing Committee will add the candidate to the list and announce its decision to the applicant in an email. If the application is controversial or Is not meeting the outlined requirements, the Committee will recommend what steps the applicant should take in order for their application to be accepted.

Graduation Checklists

Graduation from the individual Tacoma Intermediate modules means that you acquire and keep the skills badges earned after successfully passing a module.

NOTE: Pass requirements and graduation requirements may be updated by the Intermediate Committee as needed.

There are three types of graduation in the intermediate climbing program:

1) Graduation from the Rock Module
2) Graduation from the Glacier/Alpine Module
3) Graduation from the Intermediate Alpine Climbing Program (graduation from both modules)

Intermediate Rock Module Graduation Requirements: Checklist

- ❑ Pass the module (all single and multi-pitch assessments)
- ❑ Be current on Wilderness First Aid
- ❑ Be current on navigation training
- ❑ Serve as an instructor at Basic Course Field trips: FT1 Prep, FT1, FT2, FT 4 Prep, FT 4, FT 5
- ❑ Complete one leadership activity
- ❑ Complete one community or stewardship activity
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Serve as a rope leader on 3 Basic rock climbs
- ❑ Complete 2 Intermediate rock climbs
- ❑ Submit a graduation application (found on the course website in the course materials tab) to the Intermediate Climbing Committee Records Chair and Chair.

Intermediate Glacier/Alpine Module Graduation Requirements: Checklist

- ❑ Be current on Wilderness First Aid

- ❑ Be current on navigation
- ❑ Serve as an instructor at the following Basic Course field trips : FT1 Prep, FT1, FT2, FT3, FT6 prep, FT6, FT7.
- ❑ Serve as a rope lead on 3 basic glacier climbs (mentored climbs will satisfy two of these)
- ❑ Complete one leadership activity
- ❑ Complete Becoming A Mountaineers Leader eLearning Course
- ❑ Complete one community activity or stewardship activity
- ❑ Complete AIARE level
- ❑ Complete 2 Intermediate Ice climbs

Graduating from the Intermediate Alpine Climbing Program

Graduation from the Intermediate Program is a major accomplishment. Many students starting the program find the level of commitment required to graduate exceeds the amount of time and effort they can or want to invest. Acquiring the Intermediate Badge is an indicator of technical competence on rock, snow and ice, as well as leadership.

The following requirements must be met to graduate from the whole Intermediate Alpine Climbing Program:

- ❑ Graduate from both modules
- ❑ Complete the Mountaineers Outdoor Leadership Seminar
- ❑ Complete at least six 6 basic climbs as a rope leader or mentored leader in a safe and competent manner, including at least two 2 rock and two 2 glacier climbs. Each climb must be of a separate and distinct route.
- ❑ Complete eight 8 intermediate climbs, including at least two 2 alpine ice and two (2) alpine rock climbs. Four 4 of these climbs must be posted on the Mountaineers website before the event takes place.
- ❑ Maintain Wilderness First Aid certification or higher during while in the Intermediate Course.
- ❑ Submit graduation application (found on the course website in the course materials tab) to the Intermediate Climbing Committee Records Chair and Chair.

Appendix 2: Intermediate Qualifier

Intermediate Qualifier Refresher

Date: **1/15/2020**
Time / Place: Tacoma Program Center
Reading: Intermediate Qualifier Scoresheet
Basic Climbing Course Manual
Basic Climbing Course Field Trip Instruction Manual
FOTH VIII: Any relevant pages needed for self-study.

Lecture Objectives:

- Allow students a chance to practice basic climbing techniques and instructional abilities that will be tested at the Intermediate Qualifier.
- Offer a final chance for students to ask questions about the practical exam or conditioner.

Learning Outcomes:

- Know what skills I will be expected to perform and teach at the intermediate qualifier.
- Identify the basic mountaineering skills that I need to practice in order to pass the qualifier.

Equipment:

Climbing Harness	6 Carabiners	3 Runners	Leader Tie-Off
Ice Axe	Rescue Pulley	Prusik slings	Helmet
Belay Gloves	Belay Device	10 Essential Systems	Picket
Autoblock	2 Locking Biners		

Program: Practice basic techniques and instructional abilities for the following areas:

1. Navigation
2. Crevasse Rescue
3. Belay Drops
4. Rappels
5. Knots
6. Prusiking
7. Rock Climbing Technique
8. Snow Belays
9. Snow Travel Techniques
10. Ten Essentials

Note: This is a review. Use this time to get prepared for the qualifier. At the qualifier field trip you are expected to come prepared to demonstrate your knowledge of basic techniques and ability to instruct them!! There, you will be graded. A passing grade is required for continuation in the Intermediate course.

Intermediate Qualifier Practical Exam

Date: **1/25/2020**

Time / Place: 7 AM, Tacoma Program Center

Reading: FOTH VIII: 5, 9, 10, 11, 12, 16, & 17
Basic Climbing Course Manual
Basic Climbing Course Field Trip Instructor's Manual
Intermediate Qualifier Score Sheet

Learning Objectives:

- Allow the Climbing Committee an opportunity to test and evaluate each student's basic level of performance and instructional skills in order to determine his/her ability to continue with the Intermediate program.
- Introduce techniques used in the Intermediate course and ensure the use of standardized techniques in the Basic course.

Learning Outcomes:

- Pass the qualifier with a minimum of 80 points
- Pass each section at or above the minimum score required

Equipment:

Climbing Harness	6 Carabiners	3 Runners
Leader Tie-Off	Ice Axe	Rescue Pulley
Prusik slings	Helmet	Belay Gloves
Belay Device	10 Essential Systems	Autoblock Sling
Picket	2 Locking Biners	

Program: PRACTICAL EXAM of basic techniques and instructional abilities for the following areas:

1. Navigation
2. Crevasse Rescue
3. Belay Drops
4. Rappels
5. Basic Course Knots
6. Prusiking
7. Rock Climbing Techniques
8. Snow Belays
9. Snow Travel Techniques
10. Ten Essential Systems

Note: This is a **practical exam**, not a review. You are expected to come to the field trip prepared to demonstrate your knowledge of basic techniques and ability to instruct them. You will be graded, and a passing grade is required for continuation in the Intermediate course.

Intermediate Qualifier Score Sheet

Station 1: Navigation - Possible Score (9)

Map & Walk Bearing	_____ (2)	Walk Bearing	_____ (3)
Triangulation	_____ (4)		

Station 2: Crevasse Rescue - Possible Score (12), Minimum Required (9)

Single Pulley	_____ (4)
Z Pulley	_____ (8)

Station 3: Belay Drops (4 total) - Possible Score (16), Minimum Required (13)

Anchor Set Up / Tie-In	_____ (3)	Other Belay Devices and tie off	_____ (5)
Signals	_____ (3)		
Munter Hitch	_____ (5)		

Station 4: Rappels - Possible Score (17), Minimum Required (14)

Rappel Set Up	_____ (6)	Autoblock Setup/Use	_____ (1)
Technique	_____ (5)		
Stopping/Control	_____ (5)		

Station 5: Knots - Possible Score (6)

Single Bowline	_____ (.5)	Prusik	_____ (.5)
Alpine Butterfly	_____ (.5)	Bachmann	_____ (.5)
Bowline on a Coil	_____ (.5)	Water Knot	_____ (.5)
Munter Hitch	_____ (.5)	Clove Hitch	_____ (.5)
Figure 8 on a Bight	_____ (.5)	Girth Hitch	_____ (.5)
Rewoven Figure 8	_____ (.5)		
Fisherman's	_____ (.5)		

Station 6: Prusiking (Texas Prusik) - Possible Score (8)

Set Up	_____ (3)	Descending	_____ (2)
Ascending	_____ (2)		
Resting	_____ (1)		

Station 7: Rock Techniques - Possible Score (10)

Face Climbing	_____ (2)	Layback Climbing	_____ (2)
Friction Climbing	_____ (2)	Chimney/Stemming	_____ (2)
Jamming	_____ (2)		

Station 8: Snow Belays - Possible Score (8)

Carabiner Ice Axe Belay		Deadman Set Up	_____ (1)
- Set Up	_____ (2)	Bollard Set Up	_____ (1)
- Taking in Rope	_____ (2)		
- Playing out Rope	_____ (2)		

Station 9: Snow Techniques - Possible Score (9)

Self-Arrest		Rest Step /	
- Feet First Front	_____ (1.5)	Moving in Balance	_____ (1.5)
- Feet First Back	_____ (1.5)	Ice Axe Use	_____ (1.5)
- Head First Front	_____ (1.5)		
- Head First Back	_____ (1.5)		

Station 10: Ten Essentials - Possible Score (5)

Hydration	_____ (.5)	First Aid Kit	_____ (.5)
Illumination	_____ (.5)	Repair (knife)	_____ (.5)
Nutrition	_____ (.5)	Matches, fire starter	_____ (.5)
Insulation	_____ (.5)	Emergency shelter	_____ (.5)
Navigation	_____ (.5)		
Sunglasses/Sunscreen	_____ (.5)		

Total Score

Total Score _____ / 100

**Minimum score required for Intermediate Course = 80*

Intermediate Qualifier Conditioner

Date: **1/26/2020**

Time / Place: 6:30 AM, Mt. Si Trailhead; carpool from The Tacoma Program Center, 5:30 am.

Learning Objective:

- Students will demonstrate their fitness level is at the minimum standard for participation in Intermediate Climbing course.

Learning Outcomes:

- Gain understanding of one's current level of physical fitness, and measures needed to maintain it throughout the climbing season.

Directions:

Take Interstate 90 East from Seattle. Exit at Exit #31, 202W, North Bend. At the stop sign at the bottom of the freeway ramp, turn left (North). Drive 0.9 miles to a light in downtown North Bend and turn right (East) on to North Bend Way. Drive 1.4 miles to Mt. Si Road and turn left (North). Drive 2.4 miles to Mt. Si trailhead and make a left turn into the parking lot. All mileage is approximate. Arrive no later than 6:30AM for a 7AM departure from the trailhead.

Description:

The Conditioning Qualifier is intended to ensure that you have the basic level of physical fitness required to successfully participate in the Intermediate course. This is not a race! The exercise will, however, require you to exert yourself at steady aerobic output for two hours.

There is a total elevation gain of about 3,400 feet spread over a trail length of approximately four miles (to the base of the “Haystack”). Participants will target reaching the top from the parking lot in two hours or less

(adjusted for trail and weather conditions) while carrying a pack weighing 35 pounds. Participants who cannot complete the exercise in this time period will not be allowed to proceed further in the Intermediate Course.

It is highly likely that the trail will be icy and snowy in its upper reaches, and crampons and ice axes are required equipment. In addition, you should also bring a set of ski poles to help with balance. This will also help increase your speed. Mountaineering boots are also a requirement. No soft-sided day hiking boots or tennis shoes.

Equipment:

Pack as if you are on a typical summit attempt. Pack could include ski poles for walking, crampons, ice-axe, snow shoes, mountaineering boots, two quarts water, ten essentials, and food. We will weigh your pack at the trailhead.

Appendix 3: Field Trip Plans

Note: Before all field trips check the field trip listing on The Mountaineers website and contact the field trip leader for possible additions or changes, particularly changes in the location, time and gear list.

Rock Module

Intermediate Field Trip 1 - Rock Climbing 1

Date: **5/2 & 5/3 2020**
Time / Place: 7:30 AM Leavenworth, Washington
Directions: **Campsite TBA**
Prerequisites: Attend prior lecture and skills practice
Note: Successful completion of this field trip is required before serving as a rock rope lead on basic climbs, swinging leads on intermediate climbs and participation on rock field trip 2.

Learning Objectives:

- To learn and practice the following climbing system components:
    - Using your gear and gear management
    - Placing protection (all types)
    - Building SRENE anchors
    - Lead and climb planning
    - Purpose of oppositional anchors
    - Belaying at an upper belay station
    - Lead climb planning

Learning Outcomes:

- Perform a competent lead climb with confidence on class 5.4 or higher.
- Competently set-up and perform a double rope rappel, while explaining the process.

Equipment: *Contact the field trip leader for possible additions or changes to this list*

Climbing Harness	Leader Tie-Off	Helmet
Belay Gloves	10 Essentials	6 Single Runners
2 Double Runners	Hardware Sling	Chock Pick
10 Carabiners	Overnight Car Camp Gear	Cordelette/Equalette
1 Rope per 2 Climbers	Basic rack (>10 pieces)	
Rock shoes	SLCD (cams): #1, #2 & #3	

Optional Equipment

rappel ring	more passive or active pro
more runners	more carabiners

Program:

1. Climbing Safety (helmets, check tie-ins).
2. Anchor placements (including oppositional and directional anchors for swinging leads).
3. Anchor tie-in (leader and follower).
4. Practice placing chocks and equalizing systems while on the ground.
5. Load protection placements with body weight.
6. Fall factor and early and frequent protection placements.
7. Use of slings to prevent rope drag and zipper effect.
8. Climbing logistics (racking and lead/follower role)
9. Anchoring and belaying at start of climb.
10. Leader/follower communication.
11. Cleaning and following the pitch.
12. Top-roped climbing (mock-lead) placing and cleaning protection.
13. Lead and clean at least one class 5 pitch.

Field trip 2: Multi-pitch climbing and Self-Rescue

Day 1: Multi-pitch climbing

Date: **5/16 2020**
Time / Place: 7:30 AM, Leavenworth: Campsite TBA
Prerequisites: Successful completion of prior lectures, field trips and skills practice nights.

Learning Objectives:

- Practice the fundamentals of multi-pitch climbing and belaying on 5th class rock to include anchor setup, hanging belays and alpine rappels.

Learning Outcomes:

- Practice skills required to swap lead, including organizing gear and stacking ropes while at a "hanging belay".
- Practice placing active protection
- Pass multi-pitch route test

Equipment: *Contact the field trip leader for possible additions or changes to this list*

Rock shoes		
Climbing Harness	Leader Tie-Off	Helmet
ATC Guide	Gloves	8-12 Stoppers, Hexes, Tricams
10 Essential Systems	10 Single Runners	3 Double Runners
Chock Pick	10 Carabiners	1 Rope per 2 Climbers
Cordelette/Equalette	Hardware Sling (regular sling will suffice)	
Overnight Car Camp Gear	1 piñata per group	

Equipment: Recommended

more rock protection more runners more carabiners

Program:

1. Demonstrate swinging leads.
2. Practice swinging leads.
   Safely perform a short multi-pitch climb.
3. Perform alpine rappels.

<u>Day 2</u>: Self Rescue

Date: **5/17/2020**
Time / Place: 7:30 AM, Leavenworth. Campsite TBA
Prerequisites: Attend self-help lecture and prior lectures, field trips and skills practice nights

Learning Objectives:

- Expose students to the methods of treating and transporting injured climbers on technical terrain.
- Stress methods that small climbing parties can use to handle emergency situations without outside help.
- Learn how to adequately assess wild anchors for soundness.

Learning Outcomes:

- Practice simulated self-help accident and emergency transportation situations through the use of friction hitches and belay techniques.
- Acquire the technical rope skills required to effectively implement a small party rescue.

Note: Passing this field trip is required to serve as a rope lead on basic rope climbs and to climb with other members on intermediate rope climbs.

Equipment: *Contact the field trip leader for possible additions or changes to this lis*t.

Rock shoes
Climbing Harness
Helmet
6 Single Runners
Hardware Sling
Belay Gloves
10 Carabiners
8-12 Stoppers and Hexcentrics
1 Rope per 2 Climbers
Cams (BD #1,#2 and #3 or other brand equivalent sizes)
Leader Tie-Off
10 Essentials
1 Double Runner
Chock Pick
Prusik Slings
Cordelette/Equalette

Equipment: Recommended

Rappel ring
More chocks
More carabiners.
More runners

Program:

- Rappels - Bruce's Boulder
  - Extended devices – halved cordelette, single sling, benefits (F2 pg 24)
  - Saddle bags (ropes get caught on throws)
  - Stacked (pre-rigged) students with extended rappel (Fasulo2 page 107)
  - Assisted rappel with cordelette (Fasulo2 page 108) – carabiner brake adds friction
- Rescuing Second from Direct Belay using Terrain (Fasulo2 pg 8-9, 160-1) – Barney's Rubble
  - Belay from anchor with locking biner
  - 3:1 haul for stuck follower (short ascend) – prusik, biner (F2 pg 166)
  - Unloading a direct belay (short descent to ledge) – skinny sling, munter hitch belay backup
  - Catastrophe knot – Figure 8 loop
  - Switch to biners at anchor and shift device to harness with extended rappel, autoblock
  - Counterweight rappel, remove catastrophe, descend, use prusik above second, descend – do as part of rescuing second
  - Set up independent anchor, belay to rescued party

- Rescuing Second using Redirected Belay and Terrain or Technical Ledge (Fasulo2 pg 168-9) – Barney's Rubble
  - Set up Redirected belay
  - Get to hands free (slipped half hitch, Fasulo 2 pg 90, or mule) and catastrophe knot (Figure 8 onto harness)
  - Use technical ledge [friction hitch (options: prusik, klemheist) and load releasable hitch (options: mariner or münter slipped half hitch)] and load second's weight onto anchor by releasing hands-free side
  - Clip two reversed biners to anchor or use locker if already the redirected biner; clip rope
  - Use extended rappel with autoblock and remove all slack
  - Release technical ledge [friction hitch load releasable], personal anchor, and catastrophe knot
  - Counterweight rappel
  - Discuss harness belay options – pretty close to redirected belay rescue system
- (Optional, as time permits) Leader Rescue – Fixed Line, Existing Pro (Fasulo2 189-90) – Bruce's Boulder

- Evaluate situation and choose a method – lower to your location? Lower to a ledge? Ascend?
- Option: Counter-weight ascending with prusik and grigri or belay device/autoblock (F2 pg 188) plus figure 8 catastrophe knot adjusted as you go
- If leader can function, leader fixes line onto pro below top piece with prusik/leader tie off and second ascends using prusik and belay device/autoblock with figure 8 catastrophe knot adjusted as you go (F2 pg 190)
- Climb fixed line?

Glacier/alpine Module

***Note**: Before all field trips check the field trip listing on The Mountaineers website and contact the field trip leader for possible additions or changes, particularly changes in the location, time and gear list.*

Field Trip 1: Managing "3rd class" terrain

Date:	**3/7/2020**
Time / Place:	7 am, Little Si. Carpool from the clubhouse (6 am) is essential.
Prerequisites:	Reading: see handout
Lead Instructor:	Gregg J. Gagliardi: gagliardigregg@gmail.com

---

Learning Objective:

Learn to lead others on glacier and alpine climbs that involve travel on sections of "3rd class" terrain; use of natural anchors, rope and handline use, belaying followers, lowering followers, assisting followers.

Learning Outcomes:

Build natural anchors (i.e., anchors that don't require artificial protection such as nuts and cams), belay from natural anchors, lower from natural anchors and assist followers using the climbing rope. When required, setup a safe handline for ascending and descending steep snow, rock or slippery terrain.

Equipment *Contact the field trip leader for possible additions or changes to this list*.

1. Harness
2. Large HMS locking carabiner, also called a pearabiner (for belays and lowers)
3. Guide type belay device (e.g., BD ATC Guide, Petzl Reverso)
4. Autoblock (either sewn or DIY using a four-foot length of 5-6mm perlon accessory cord)
5. 3 x Double length runners (48") (sewn webbing or DIY from a 10 foot length of 9/16" to 1" webbing)
6. Cordelette
7. Three medium size locking carabiners
8. Rope (30-60 meter single rope) (one rope per two persons).
9. Helmet

Prepare and pack for the forecasted weather conditions for a one-day outdoor trip in the mountains.

Program:

1. Introduction/field trip focus
2. New knots: bowline around an anchor, tensionless hitch

3. The protection continuum: modeling -- coaching-- spotting -- hand-lining -- belaying
4. Belaying versus hand-lining: trade-offs (group discussion)
5. Belaying the follower directly off the anchor using a Munter hitch
    a) Anchor set-up
    b) Belay procedure
    c) Lowering procedure
    d) Guided practice
6. Belaying the follower directly off the anchor using a plate type device
7. Using the rope anchored around a natural feature for a hip belay
    a) Anchor set-up
    b) Belay procedure
    c) Lowering procedure
    d) Guided practice
7. Setting up hand-lines: demonstration and practice
    a) Bottom anchor alternatives
    b) Intermediate anchor construction
    c) Top anchor alternatives
    d) Ascending set-up (prussik and cow's tail) and procedure
    e) Descending procedure
    f) Guided practice
7. Review, questions, additional practice

Field trip 2: Snow and glacier travel

Date: **3/14 & 3/15 2020**
Time / Place: 7 AM, Crystal Mountain, Bullion Basin
Prerequisites: Attendance at Lecture 1.

Learning Objectives:

- Learn and/or practice the fundamentals of winter snow travel, wand placement, snow anchors and belay techniqueS.

Learning Outcomes:

- Perform specific mountaineering skills including passing an anchor, building various snow anchors, belaying

Equipment: *Check with your field trip leader for possible additions or changes to this list*

Tent

Sleeping Bag & Pad	Ice Axe	Crampons	10 Wands
10 Essentials	Shovel	Snowshoes or Skis	Stove per 2 Climbers
6 Carabiners (3 lockers)	Avalanche transceiver	Pickets and runners	Belay device
Garbage & Blue bags	Avalanche Probe	Tibloc (or MicroTraxion)	
Leader tie off (or Sterling Hollow block) (2)			

Equipment: (optional)

Ski Poles	Snow Saw	Bivy Sack or Tarp	Candles Pulley

Program:

1. Snowshoe to camp.
2. Prepare a snow camp
3. Introduction to steep snow travel
4. Snow Belay and anchors.
5. Responsibilities as a rope lead on basic glacier climbs
6. Crevasse rescue test (6:1 drop loop)

Note: Skis may be used instead of snowshoes if you are comfortable skiing with a full pack on moderate slopes.

Field trip 3– Hard Snow / Ice Climbing 1

Dates: **8/1 & 8/2 2020** ***Or***
8/8 & 8/9 2020

Time / Place: 7 AM, Mowich Lake Parking Lot

Directions: Merge onto WA-410 E toward Sumner/Yakima; at Buckley bend go straight and then take immediate right onto; make left onto WA-165; cross one lane bridge; pass road to Carbon River Ranger Station; becomes Forest Road 79 later turning into Mowich Lake Road. Total Est. Time: 2 hour

Prerequisites: Attend prior lectures, field trips and skills practice nights

Learning Objectives:

- Practice placing and building anchors in hard snow.
- Practice and gain confidence with various crampon techniques

Learning Outcomes:

- Safely ascend multiple pitches of steep snow.
- Demonstrate competence with various cramponing techniques.

Equipment: *Check with the field trip leader for possible additions or changes to this list.*

Climbing Harness	Leader Tie-Off	2 Double Runners
Helmet	10 Essentials	4 Locking Biners
12-Point Crampons	4 Single Runners	1 Rope per 2 Climbers
Belay Gloves	8 Carabiners	Overnight Gear
Ice Axe	Second Ice Tool	Belay Device
4-5 Ice Screws	3 Prusik Slings	2 Pickets
2 Rescue Pulleys	Chest Sling	Cordelette/Equalette

Program:

1. Belay anchors and running belays
2. Swinging leads on multi-pitch snow and ice slopes
3. Crampon techniques (French, German and American Technique)
4. Traversing steep slopes
5. Step kicking, plunge stepping on hard steep slopes
6. Rappelling and recovering rappel anchors on snow slopes
7. Practice placing ice and hard snow protection
8. Practice building anchor systems

Field Trip 4 - Ice Climbing 2

Date: **8/15 & 8/16 2020** ***Or***
9/5 & 9/6 2020

Time / Place: 7 AM, Mt. Baker Heliotrope Trailhead

Directions: I-5 N.; take WA-542/Mt. Baker Hwy. at exit 255; turn right onto Forest Road 39. Total Est. Time: 3 1/2 hours

Prerequisites: Attend ice lecture
Pass Hard Snow/Ice 1 Field Trip

Learning Objectives:

- Practice and demonstrate the fundamentals of ice climbing, belaying and rappelling on ice.

Learning Outcomes:

- Demonstrate safe and efficient ice climbing technique while leading one pitch of low angle ice

Equipment: *Check with the field trip leader for possible additions or changes to this list*

Climbing Harness	Helmet	4 Locking Biners
10 Essentials	6 Single Runners	2 Double Runners
12-Point Crampons	10 Carabiners	Cordelette/Equalette
Ice Axe	Belay Gloves	Overnight Glacier Gear
4-5 ice Screws	Prusik Slings	Rescue Pulley
Chest Sling	1 Rope per 2 Climbers	Set of two ice tools
Plastic or Full Shank Boots		

Program:

1. Chopping steps.
2. Anchor setup, including ice bollards.
3. French technique.
4. Placing ice screws.
5. Front Pointing.
6. Rappelling.
7. V-Thread
8. Leading and cleaning at least one ice pitch.

Appendix 4: Lecture Outlines:

Rock Module Lectures

Self Rescue

Date:
Time: 6:30 pm
Place: Tacoma Program Center

Lecturer: Mindy Roberts
Text: Self-Rescue, David J. Fasulo, 2011 2nd edition

Field Trip Logistics – 5-10 mins.

• Students meet Sunday at 7:00 at ___ ready to go (instructors meet at 6:00).
• Gear: See Field trip plan. Helmet, harness, boots, parabiner with belay device, personal anchor, cordelette, perlon slings, webbing slings (sewn or tied), locking biners, regular biners, extra slings, Fasulo-2 (2011)

Rescue perspective (15 mins)

Lost five friends due (in part) to climbing accidents, all of which had some decisionmaking errors. Heard stories as a beginner climber, but hard to relate – "it won't happen to me." In 2005, Jo Baccus died along with two other leaders during a rescue after being hit by a rock approaching Sharkfin Tower – the worst incident in Mountaineers history. During 2006 Bolivia climbing trip, Hardy Batchelor died in a fall, along with Sue Nott and Karen McNeill – it happens. Mizuki Takahashi died in a fall climbing Denali in 2007. Lisa Berntsen died of HAPE climbing in Nepal in 2014. In 2017, Sue Bennett died in a fall while descending Forbidden.

• Safety chair perspective – 10 years …
• Should we vs. can we rescue
o Most of our courses teach how to address "can we"
o "should we" is a function of decisionmaking and judgment but critical
o Technical tools part of rescue system, but only part – decisionmaking is a fundamental part of rescue systems. separate seminar – now worked into basic course.
• Subjective pressures you will face
o New leader roles (vs. seasoned leaders), perceived or real hierarchy issues
o Credit for climb drives us forward, embarrassment of rescue
o Impressing others is a part of what we do – inevitable, but be cautious
• When things go wrong, slow down and CHECK CHECK CHECK
o Very difficult to get a thorough, independent check in our hierarchy – deference
• If something happens *Can we v. should we* – evaluate carefully

o Pinky swear…

Fasulo's ACBs (5 mins)

• Assessment – patient, terrain (real ledges, technical ledges), confidence in technical skills
• Course of Action – descend, ascend, stabilize/shelter in place
• Belay – direct belay from anchor, redirected belay, harness belay

A TECHNICAL LEDGE = FRICTION HITCH AND LOAD RELEASABLE HITCH

Technical Skills – knots, rappels, assisting or rescuing second, rescuing leader as time permits

1. Knots – building blocks for self rescue (30 mins) – (no Dyneema that slides)

• Friction hitches – Klemheist (F2 pg 47), autoblock, plus prusik and Bachman
• Extended rappel – double sling (not personal anchor) with figure 8 knot
• Load-releasable – Mariner (F2 pg 37), munter-slipped half hitch (F2 pg 35), device slipped half hitch (F2 pg 90)

2. Three methods of belaying – advantages and disadvantages of each (30 mins)

1. Belay off harness toward climber while anchored behind you (basic course method)
2. Redirected belay off harness toward anchor – increases fall load on anchor, facilitates rescue
3. Belay from anchor – special device needed for hands-free, facilitates rescue, have belay backup when lowering someone.
a. BD video: https://www.youtube.com/watch?v=KM5c9wlTReo
b. Unloading a direct belay (short descent to ledge) – skinny sling, over high biner, munter hitch belay backup (F2 pg 95 with munter not autoblock; BD video)
c. 3:1 haul for stuck follower (short ascend) – prusik, biner (F2 pg 166 but ignore harness tie-in)

3. Demo, Rescuing the Second from a Direct Belay (Fasulo2 160-1 but on terrain) (30 mins)

• Belay set up with locking biner
• Hands-free (easy!)
• Catastrophe knot – Figure 8 loop, hanging *or* clip to harness (preferred)
• Switch to biners at anchor and shift device to harness
• Transition to counterweight rappel with extended rappel (Fasulo2 pg 161), autoblock but with second below you, not on back
• Descend to climber and use prusik on second's rope
• Mention "technical ledge" if no real one; Technical Ledge = friction + load releasable *MEMORIZE*
• Practice in small teams as time permits

BE HEARD, NOT HERD – speak up if you see something you do not fully understand. YELLOW LIGHTS ARE THE HARDEST TO INTERPRET.

EXPERIENCE CAN DULL THE RISK PERCEPTION – GETTING AWAY WITH ITB –

Glacier/Alpine Module Lectures

Lecture 1: Snow and glacier travel

Date:

Time: 6:30 pm

Place: Tacoma Program Center

Reading: FOTH

See the Dropbox link (below) for a complete copy of the Powerpoint presentation.

https://www.dropbox.com/s/y0t7e1y84n2527r/Intermediate%20snow%20travel%20lecture%202.pptx?dl=0

Lecture topical coverage

Technical trip planning

- Information sources
- Topos
- Navigation and time plans
- Time estimation using Guide Pace
- Weather sources

Snow/glacier travel in context

- Protection spectrum
- Rope, anchors, belays, rappels
- Crossing crevasses: on ascent, on descent
- White-out navigation strategies

Skills practice

- Anchors
- Belays and lowers

Lecture 2: Crevasse Rescue

Gregg J. Gagliardi

Date:

Time: 6:30 pm

Place: Tacoma Program Center

Reading: Handout (see appendix)

Lecture outline

- Stopping a serious crevasse fall can be difficult
  http://www.climbing.com/videos/self-arrest-practice-falling-into-a-crevasse/

- Advantages of the 3:1 and Z x C systems
  - Well respected methods
  - Widely known among climbers
  - Generally effective for crevasse rescue

- Limitations of the 3:1 and Z x C systems
  - Rope entrenchment in the lip (if entrenched you need to dig it out or get a second rope for rescue
  - Difficulty stopping severe falls (stopper knots cannot be used but might otherwise be helpful)
  - The 3:1 and Z x C systems are overkill for minor falls

- Advantages of the 6:1 drop loop system
  - Rope entrenchment is a non-issue
  - Works with or without stopper knots
  - Can be quickly set-up in minimized form (2:1) for efficient assistance/rescue
  - Easy to multiply the mechanical advantage of the 2:1 to create a 6:1 system
  - Works with 2-person teams as well as 3-person teams

- Limitations of the 6:1 drop loop system
  - The system is unfamiliar to most climbers
  - Requires the climbers to carry sufficient rope in coil

- Under some circumstances stopper knots may save your butt.
  https://m.youtube.com/watch?v=0qQUuulHGSI

- If the knots catch in the lip:
  - They may help arrest the fall
  - They may shorten the fall
  - They may help hold the fall (facilitating anchor set-up)

- Stopper knots do, however, have some disadvantages
  - They don't always work (success depends on (a) type of knot and (b) snow conditions)
  - They are inconvenient for belays/ running belays
  - It is awkward and slow to prussik out of the crevasse with knots on the rope
  - Using stopper knots requires that your rope partners know how to set-up the drop loop system

- Guidelines for when to consider using stopper knots
    - When glaciers are "wet", i.e., covered with snow (knots may be more likely to catch in the lip)
    - When traveling long distances with no or only infrequent need for belays/running belays
    - When there is little or no need for roped rock climbing on the route
    - When traveling as a team of 2, or traveling as a single party team
    - When traveling on broken up glaciers with increased risk for crevasse falls
    - When traveling with heavy packs or sled

- Setting up the 6:1 system (narrated demo)
- Crevasse accident response
    - 1. Arrest the fall
    - 2. Set up an anchor
    - 3. Communicate with the victim
    - 4. Devise a plan
    - 5. Carry out the plan
- Rescue anchor types considerations

- Guided practice

Lecture 3– Ice Climbing

Date: **8/2/2020**
Time / Place: 7 PM, Tacoma Program Center
Reading: *FOTH VIII:* 17, 18

Additional References:

Petzl -How to ice climb @ YouTube: http://www.youtube.com/watch?v=36dOEOFZW1k
Luebben: How to Ice Climb
Gadd: Ice & Mixed Climbing: Modern Technique
Lowe: Ice World

Learning Objectives:

- Discuss movement skills and protective systems used for steep ice climbing.

Learning Outcomes:

- Identify and describe various ice axe and crampon techniques as well as various protection systems used in alpine ice climbing

Appendix 5: Handouts

Glacier/Alpine Module

Managing "3rd class" terrain

Gregg J. Gagliardi

Many glacier/alpine climbs involve approaches and/or descent over 3rd class, 4th class and easy 5th class terrain. This field trip focuses on methods for leading others over this type of terrain. Methods for climbing steep snow will be covered on another field trip

Knots

It is assumed that field trip participants have mastered those knots taught in the basic course. The following additional knots are recommended and will be demonstrated and practiced at the field trip.

1. Double bowline around an object (tree and rock anchors)
2. Tensionless hitch (tree anchors)
3. Bowline on a bight (easier untying of weighted anchors)

Rope/hand-line.

On glacier/alpine climbs the leader usually carries a dynamic rope, rated as a single rope, double rope, twin or triple-rated. For most glacier climbs a 50-60 meter meter rope is sufficient for three person teams. Experienced climbers will sometimes carry ropes that are only 30 meters long, but doing so requires mastery of advanced crevasse rescue skills such the double mariner haul.

More recently some sources (e.g., Petzl) have recommended using a static or semi-static rope rather than dynamic climbing rope for glacier climbing. This too should be considered an advanced technique to be used by parties who are fully informed of the risks and benefits, and limitations of static and semi-static ropes on glacier climbs.

Finally, some alpine climbs may not require a dynamic climbing rope as they may be ascended with only the use of a hand line. Hand lines are best constructed from semi-static rope that is 8-9mm in diameter. Semi-static ropes are stiff enough for efficient progress on hand lines but also dynamic enough to catch a follower's fall. *They are unsafe for belaying a leader.*

Natural Anchors.

In alpine settings the most efficient anchors are natural anchors. These are trees and stable rock features (horns, large blocks, etc.) that can be tied off with the rope, webbing or cordelette. How much cord or webbing to carry for anchor construction depends on the climb and nature of the steep sections, and kinds of natural anchors. It pays to research these matters in advance of the climb and to prepare accordingly.

Rock ascent

Most third class sections of rock can be solo climbed without the assistance of a rope. In many cases the leader can manage these sections for less experienced climbers by modeling efficient climbing techniques, coaching or even spotting participants on more difficult moves.

Vertical and traversing rock sections.

This kind of terrain can be managed by anchoring the rope at the bottom of the steep section, climbing and setting up an anchored hand-line at the top. Intermediate natural anchors are placed at strategic places along

the way where there is an increased risk for a slip or fall. Without intermediate protection there is a danger that a follower could slip, and their prussik fail to catch them, resulting in a dangerous fall or slide all the way to the bottom anchor. Strategically placed intermediate anchors limit the length of potential falls. They also allow more than one person at a time to ascend the hand-line, provided there is no more than one person per section (i.e., between two protection anchors).

Safe ascension on a hand-line requires two pieces of gear; (1) a Klemheist (or other friction hitch) safely attached to the harness and affixed to the rope and (2) a second single-length runner (called a cow's tail) with a carabiner at the end, also safely attached to the harness and clipped to the hand-line. This allows the ascender to safely pass intermediate anchors.

Passing intermediate anchors. When encountering an intermediate anchor the climber first moves the cow's tail past the intermediate anchor and then removes and replaces the friction hitch past the intermediate anchor. That way if the climber falls during the transition the cow's tail will stop at the intermediate anchor, which will catch and arrest the fall.

This maneuver takes time, and it will need to be performed at each intermediate anchor by each climber who ascends the hand-line. For that reason the leader needs to balance the risks and benefits of using a hand-line versus simply belaying each climber to the top one-by-one. Group size and experience are important considerations in making this decision. For example, if only one or two persons need assistance on ascent, it is usually quicker to belay them to the top. If, on the other hand, the party consists of a large group of inexperienced persons, and a hand-line will be needed on the descent as well as the ascent, it makes sense to take the time to install a hand-line and leave it in place, if the rope is not needed elsewhere on the route.

The leader needs to assure there is a safe transition from the hand-line to a safe waiting area for arriving climbers by placing the top anchor in a safe place with plenty of room at or beyond the top. Once at the top, the follower is directed to a safe waiting area while others complete their ascent.

It is often efficient to use the rope itself to anchor the top of the steep section. A good knot for accomplishing this is a double bowline or tensionless hitch. If not, a double length runner or long piece of webbing or a cordelette can be used to sling, or tie off, an object like a tree or large rock feature in order to create an anchor with a safe master point attachment. There are several ways to do this depending on the size of the natural anchor and the availability of anchor building materials. These anchor construction techniques will be demonstrated at the field trip.

Anchoring the handline at the bottom is required for safety and makes it easier to slide the prussik hitch up the rope. The bottom anchor too can be constructed with the rope or with runners or cordelette. Intermediate anchors are constructed using runners to sling or tie-off natural features like trees. A carabiner is clipped to the sling and the rope is attached to the carabiner with either a figure 8 knot or clove hitch.

Absence of intermediate protection anchors. If no intermediate natural anchors are available the only remaining way to construct intermediate anchors is placing rock protection (nuts, cams, etc.). Traditional rock climbing is not taught in the the glacier/alpine module (but it is taught in the rock module). In that case a hand-line is not recommended. The leader will, instead, need to belay each climber to the top of the steep section (and later lower them to the base of that section on descent). The leader ascends the steep section, constructs a top anchor, ties-in to the anchor when needed for personal safety, and belays followers up, one- by-one, using a Munter hitch or plate type belay device directly off the anchor.

Rock descent

Rock descent on a hand-line is basically the reverse of rock ascent. However, unlike ascent, when passing intermediate anchors on descent the climber *first moves the prussik past the intermediate anchor* and then moves the cow's tail. In the event of a slip or fall, the cow's tail will arrest the fall at the intermediate anchor.

The leader descends last, breaks down the system and solo down-climbs or rappels. Often it will be quicker and safer for the leader to lower participants to a safe landing spot one at a time using a Munter hitch off an anchor or a redirected belay with a plate type belay device.

On trips with team members who possess reliable rappel skills and experience, it may be easiest and quickest to construct a rappel anchor. Depending on how steep and slippery a section is, it may also be rappelled with an arm rappel, or South African rappel (Dulfersitz is not recommended). Rappels are discouraged for traversing descents due to the increased risk of pendulum falls.

In anticipation of descent, when setting up the bottom anchor the leader needs to assess safety at the base upon return. If the base is sketchy or unsafe, participants may need to clip their cow's tail to the bottom anchor. Alternately, the leader may choose to lower participants one at a time to a safe landing area below the base of the steep section.

---

1. For information on belaying see "Freedom of the Hills", 9th edition p. 182-185 & 194-195; and Gaines and Martin (2014) "Rock Climbing: The AMGA single pitch manual", p. 193 & p. 201. For lowering, see Gaines and Martin (2014), p. 204 & p. 206.

2. Freedom of the Hills provides little information on fixed lines (hand lines) for rock climbing but see the 9th edition, p. 256. A better, short chapter on fixed lines can be found in Gaines and Martin (2014), p. 231-234.

Six to One Drop Loop Crevasse Rescue System

Gregg J. Gagliardi

For a video demonstrating this technique click on the link below:

https://www.youtube.com/watch?v=azNTmiQCS7M&feature=youtu.be

The 6:1 drop loop technique is a high-mechanical-advantage haul system for crevasse rescue. It is a well accepted method for crevasse rescue. It is particularly well suited for travel with 2-person rope teams, but it is also an excellent system for crevasse rescue with 3-person teams.

The main advantages of the 6:1 drop loop system are as follows:

1. Rope entrenchment in the crevasse lip is not a problem because the rope to the victim is fixed to the rescue anchor.

2. Because the anchor attachment is fixed, the 6:1 drop loop also facilitates rescue when travelling with stopper knots in the rope, which are intentionally designed to catch in the lip to slow or stop the victim's fall.

3. The first stage of the system (2:1 'C' component) is readily deployed as a quick standalone crevasse rescue method when sufficient haulers are available and the fallen climber is not seriously injured, thus speeding rescue.

4. If needed for more hauling power, a 3:1 system can be easily piggy-backed onto the 2:1 system, thus creating a compound 6:1 system, which creates substantial mechanical advantage for rescues involving a single hauler or rescues of heavy loads.

The 6:1 drop loop system also has some disadvantages:

1. A 6:1 drop loop system generally requires a longer rope than a 3:1 Z system (see worked example below).

2. Stopper knots, if used, must be untied for transitions on pitches that require protection with pickets, ice screws or rock pro.

3. Stopper knots make victim self-ascent out of the crevasse on the loaded climbing rope awkward as knots must be passed on ascent. However, after the looped rope is lowered to the victim, the victim can attach their ascension system to the backside of the dropped loop that contains no knots for conventional ascent.

Glacier travel set-up

To use the 6:1 drop loop system one must have a sufficiently long rope, and carry enough rope in coils to reach the fallen climber and return midway from the crevasse lip to the rescue anchor. A 60 meter rope is enough for a 2-person team, while a 50 meter rope will suffice for a 3-person team (See Chauvin and Coppollilo, 2017, pp, 216-217).

A 30 meter rope is too short to use this system. For a two-person team on a 30 meter glacier rope the double mariner system is a good alternative (7:1 mechanical advantage), but the use of stopper knots is impractical on that system as they must be extricated from the lip and passed on hauling as one would need to do when using a 3:1 Z-pulley system.

The distance between climbers on the rope will vary depending on terrain and individual preference, ranging from about 30 to 40 feet between climbers. If travelling with stopper knots (recommended for a 2-person team on a wet glacier), these are tied as 3 butterfly knots starting 6 ft from each climber, 3 ft apart. Each knot will require about 2 ft of rope, which means that the starting distance between climbers needs to be about 52 ft if the final distance between climbers is going to be 40 ft; 42 ft if the final distance between climbers is to be 30 ft.

60 meter rope: Glacier travel setup

Each person in a two-person team carries coils. For a 60 meter rope with the distance between climbers set at 40 feet, 12 ft of rope is tied in stopper knots, 8 ft (4 ft per climber) is required for the harness tie in, and 4 ft (2 ft per climber) is required for each anchor tie-off knot.

195 ft (60 meter rope)
- 40 ft (distance between climbers)
-12 ft (rope used for stopper knots)
  -8 ft (harness tie in knots)
  -4 ft (anchor tie-off knots)
= 131 ft left for coils.

This leaves about 65 ft for each climber to carry in coils. That allows just enough rope to drop a loop or descend to a fallen climber 40 ft away and return to within about 15 ft of the rescue anchor.

Tip: Learn how much rope you personally use to create one shoulder coil. This will allow you to decide how many coils to take to create the chosen distance between you and your partner.

Tip: If for some reason there is not enough rope to construct the system, the drop loop can be extended by clipping one or more runners to the bottom of the drop loop and then clipping the other end of the runner(s) to the victim. A 48" runner clipped to the drop loop is the equivalent of adding 8 ft of rope to the system; two 48" runners will create 16 ft of extension.

6:1 Crevasse Rescue Procedure (2-person team):

You may find it easier to learn this technique by watching the video below. Mastery requires practice and yearly refreshing as this is a highly perishable skill.

https://www.youtube.com/watch?v=azNTmiQCS7M&feature=youtu.be

Step 0:

Establish the desired distance between the climbers. Take the required length of coils. Tie off the coils. Tie an overhand or figure 8 knot (anchor tie-off knot) a foot or so on the rope towards the other climber and clip it back to your harness belay loop. Attach your prusiks beyond the anchor tie-off knot (i.e., towards your partner); at a minimum, attach the prusik to your harness.

Photo 1. *Notice that the chest prusik is not routed thru a chest harness (as taught in the basic climbing class). Instead it is simply clipped to the belay loop. This makes it easier to escape the system and set up the anchor. It also creates a lower center of gravity when loaded during a crevasse fall, which is less likely to pull the fall arrester of his or her feet.*

Especially notice the bight knot (we will call it the anchor tie-off knot) clipped to the belay loop. This knot will used to tie off the anchor in a subsequent step. The anchor knot also keeps the force of a fall from coming onto the shoulder coils, thus transferring the load to the harness.

Stopper knots: If using stopper knots, Chauvin and Coppolillo (2017) recommend that each climber ties 3 stopper knots; the first 6 ft away; the next two, 3 ft apart.

Procedure

Step 1:

Arrest the fall. Allow the harness prusik to take as much of the load as you can bear. The rope to the victim has probably entrenched in the lip, which will make it easier to hold the fall and set up the anchor. If stopper knots were used, they may have successfully slowed and/or helped to stop and hold the fall. (However, it may be necessary to kick foot holds into the snow to help hold the fall and set up the first picket with one hand while holding the ice axe in arrest position with the other hand. This can be difficult. Once the anchor tie-off knot is attached to the first picket, setting up the rest of the anchor is easier).

Step 2:

Build the rescue anchor. The kind of anchor that you construct will depend on snow/ice conditions. Snow hardness will dictate whether top-clip vertical pickets, mid-clip vertical pickets or mid-clip horizontal pickets (T-slot, aka deadman), or some combination, is the strongest, most efficient choice. It is even possible that you may need to use ice screws if the fall occurs on a dry glacier.

Two separate placements (pickets or screws) will be required. Rig the pieces together to form a central master point.

Step 3:

Attach your anchor tie-off loop to the master point (see photo 2 below).

Photo 2. *Here an anchor has been created and the anchor tie-off loop (formerly clipped to the belay loop during glacier travel) has been tied off to the anchor. The harness prusik remains attached to the rope at this stage.*

Next transfer the weight from your harness prusik to the master point. The anchor tie-off loop fixes the rope to the anchor as shown in the photos below.

Step 4:

Carefully uncoil the rope and flake it out. Retrieve your cordelette and attach it to the backside of the rope from the anchor tie-off using a friction hitch, and then tie the other end to an HMS carabiner clipped to your harness belay loop using a Munter Mule Over-Hand (MMOH) knot. We will call this your rescue or self belay tether.

Make the length of the rescue tether attachment to the rope about 2 feet or so. Make sure to tie a small overhand knot in the cord before attaching the friction hitch to the rope. (This creates a space that will come in handy later if you need to clip a foot loop for ascending out of the crevasse if you need to descend to assist the victim and then later reascend). Stow the remaining portion of the cordelette. Now it is safe to untie the harness prusik

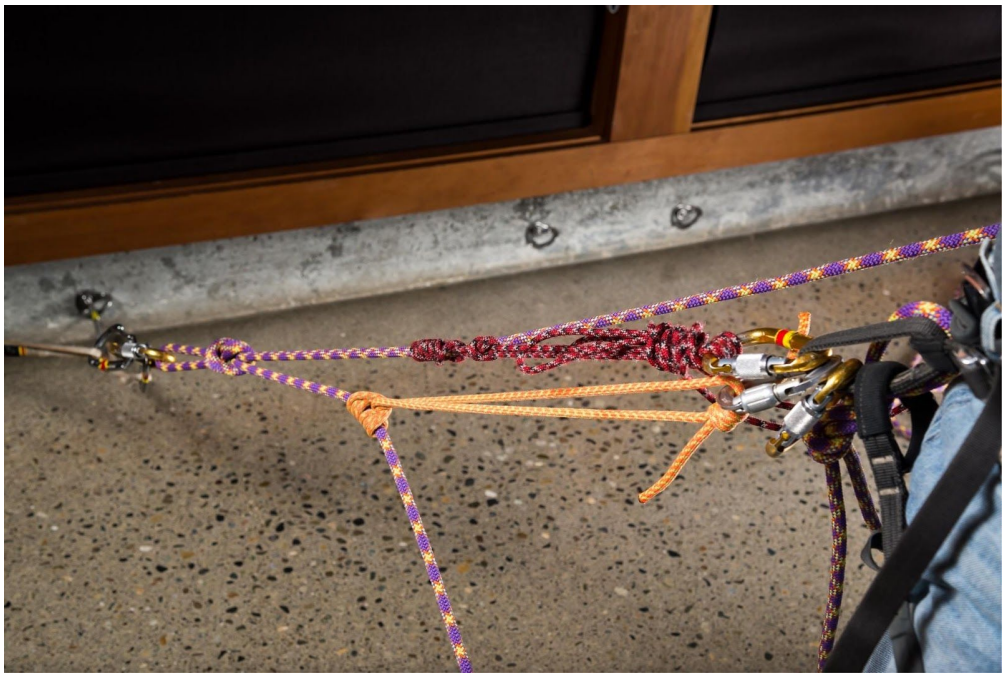

Photo 3. *The bottom strand of rope is the original strand to the victim. The harness prusik is still attached to it. The top strand is the unweighted backside of the anchor tie-off knot. A cordelette has been attached to that strand with a friction hitch (in this case a Klemheist) and this is then clipped back to the belay loop using a Munter Mule Overhand. Notice that the cordelette tether is tied off short (only about two feet long). The spare cord is tucked away. The advantage of setting up the tether this way is that it can be easily lengthened later for greater mobility on the surface and greater accessibility to the lip after the extended master point is created. These advantages will become more apparent after you setup and practice with this system.*

Step 5:

Carefully prusik to the lip, probing with your ice axe as you go, using the shortened cordelette as a self belay tether. Whenever you stop, back-up the prusik by tying safety knot below the friction hitch.

Step 6:

Communicate with the victim. This will help you decide what sort of rescue procedure to deploy.

Step 7:

Prepare the lip for the drop loop. This may require digging down to a hard snow layer and/ or padding the lip with available materials such as an ice axe, sleeping pad etc. Drop a loop of the rope to the victim, or rappel to the victim to make the attachment to the victim's harness belay loop if the victim is too injured to make the attachment. The loop of rope can be attached via a locking carabiner either with or without a pulley attached to the carabiner. If you have only one pulley, save it for possible use in constructing the 3:1 multiplier (full 6:1 system).

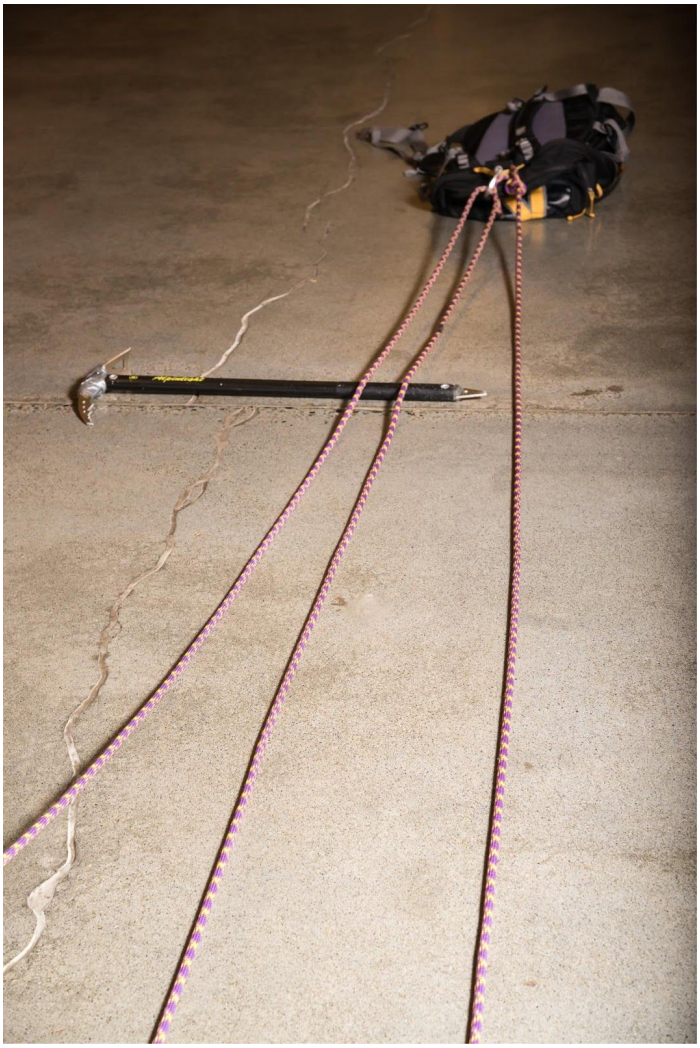

Photo 4. *The far right strand of rope is the original rope to the victim. To the left of that strand are the dropped loop strands, which now run over an imaginary crevasse lip prepared with an ice axe to prevent any further rope entrenchment.*

Step 8

Create an extended (remote) master point. This is easily done by tying an alpine butterfly knot in the backside strand of the anchor tie-off knot (the to-be-loaded side of the dropped loop, or the middle most strand in the photo). Where along the rope to create the extended master point will depend on the amount of rope available for the haul and on the terrain. The closer the master point is to the crevasse lip the less rope will be required to

set up the system; however, the closer it is to the crevasse lip the more resets will be required when using the full 6:1 system.

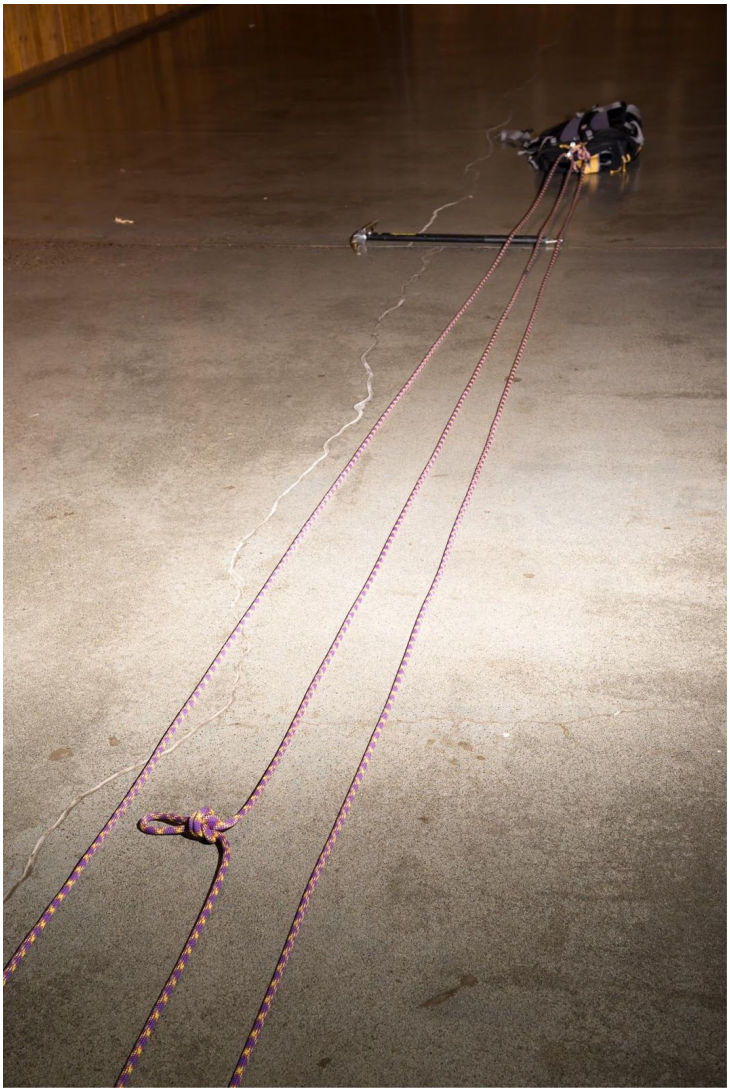

Photo 5. *Again, the far right strand of rope is the original rope to the victim. The center strand contains the alpine butterfly knot that will serve as a remote master point. The left-most strand is the strand used for the haul.*

Step 9.

Construct a progress capture mechanism on the remote master point. An ordinary friction hitch will work as a progress capture mechanism (not shown), but it will require manual tending. A Tibloc (as shown in the photo) is more reliable and will not require manual tending. (Alternately, one could use a Microtraxion or Roll N Lock here, which are even higher efficiency choices.

Photo 6. *The photo illustrates the use of a Tibloc as a progress capture device. Hauling is on the left strand. When hauling do not allow the Tibloc to be shock loaded as this can shred the rope sheath and if the force is high enough it can even sever the rope. This is easy to avoid by maintaining a taut rope to the victim while hauling.*

Step 10:

If needed for additional mechanical advantage, set up a 3:1 system on the hauling end of the 2:1 system. If you have a pulley, this is the most efficient location for the pulley.

Photo 7 and 8: *Showing the addition of the 3:1 component in the completed system. Notice that the 3:1 component (far left) is constructed on the hauling strand of the drop loop that goes from the Tibloc to the victim. It is attached in a manner that is identical to the attachment of the travelling pulley in the well known Z pulley system*.

Step 11:

Haul on the far left hand strand. Back-up and reset the 3:1 component of the system as needed and note that as you haul, the original strand of rope to the victim will go slack. When sufficient slack has developed in the original strand to the victim, tie a figure 8 in the slack and clip it to the rescue anchor, which further backs up the system.

_____

Footnote list

1. 50 meter rope, 3-person team:

A 50 meter rope is generally too short to use a 6:1 drop loop for a team of two but, surprisingly, long enough for a 3-person team. For a 3-person team stopper knots are not needed as there is enough fall arresting power with two competent team members performing self-arrest. An example is shown below.

If a team of three is travelling 40 ft apart, each end carries about 35 ft of rope in coils.

165 ft (50 meter rope)
- 40 ft (distance between end and middle climber)
- 40 ft (distance between middle and second end climber)
- 10 ft (2 figure eights and 1 alpine butterfly tie in knots)
- 4 ft (end persons' tie-off knots)
= 71 feet left for coils (2 set of coils each about 35 ft long).

The distance between a fallen end climber and the next climber is 40 ft. The distance between the middle climber and next end climber is 40 ft. Thus, 75 ft of rope (35 ft coiled plus 40 ft of rope between the climbers) is enough to reach a fallen end climber and return to within about 5 ft of the rescue anchor, necessitating a remote master point but one fairly close to the rescue anchor. Again the drop loop can be extended by adding one or more runners.

Middle person crevasse fall. If the middle climber on a 3-person team falls into a crevasse, there is little choice but to set-up a 3:1 (z-pulley) system on one end of the rope. If one of the end climbers can join the other on the same side of the crevasse s/he can help haul on that system. Ideally, in a middle-person crevasse rescue, a second team (and second rope) should be available to assist with the rescue. With a second team, and a second 165 ft climbing rope, a 6:1 drop loop system can be set-up on a prepared crevasse lip and there will probably be

enough haulers to extract the fallen climber on the initial 2:1 (C) drop-loop, another good reason to travel on a glacier with at least two rope teams.

2. Another source (ENSA Chamonix) suggests tying the first knot 3 meters away and the next two knots 2 meters apart. They also recommend tying a specialized knot that is bulkier than a butterfly knot. Other sources suggest tying stopper knots every several feet along the entire length of the rope between the climbers. At this writing (August 2017) there are no published studies comparing the effectiveness of these three methods for adding stopper knots to the rope.

Appendix 6: Tacoma Intermediate Program Policies

The Intermediate Committee has the right to update any Program Requirement or Policy as necessary.

Climb Leader Status Policy

With just cause, the Intermediate Committee has the right to revoke a person's Intermediate Climb Leader status. In order to keep Intermediate Climb Leader status a person must continue to be "active" with The Mountaineers. In order to be considered an "*active"* Intermediate Climb Leader, a person must participate in at least three (3) activities per year, sponsored by either a Basic or Intermediate climbing committee, and at least one of which needs to be an instructional activity to ensure the person is keeping up-to-date with their skills. Activities include participating in climbs, instructing at field trips, attending a climbing related seminar, or attending a course as a student. Intermediate Climb Leaders who do not maintain their active status will be put on probation and their climb leader status will be suspended until they refresh their skills. In addition, all Intermediate climb leaders need to remain current with regards to their Wilderness First-Aid requirement. Please reach out to the Intermediate Climbing Committee if you have any questions.

Course Tracking Policy

A student's progress will be tracked by the Committee on the website via activities (as participants in Intermediate lectures and field trips, or as leaders or instructors in basic, intermediate or other activities, and as partners or rope leaders on climbs) and skills badges. For each activity, it is the student's responsibility to make sure they were signed up for the activity, the correct status granted (successful, needs improvement, failed/unsafe, no show, or cancelled), and skills badge received after completion.

If a student feels they were given an incorrect status, please reach out the leader of that activity first. If the leader does not respond contact the Intermediate Committee. If you experience difficulties signing up for activities please first contact the activity leader and then the Intermediate Climbing Chair.

It is strongly recommended that students keep detailed personal records of their activities. Certificates for courses taken outside of the Mountaineers should be submitted to Mountaineers staff at info@mountaineers.org with a request that the corresponding badge be granted as this makes tracking of activities and requirements easier.

Equivalency Policy

Students who already have experience and skills in a particular area can apply for equivalency by petitioning the appropriate sub-committee (rock or glacier/alpine or both). In most cases this means students will have to provide a certificate or demonstrate their skills in a test, and may be required to instruct for the respective course or module for which they would like to receive Equivalency. For example, students wanting to receive equivalency for their trad climbing skills will be asked to instruct at the Intermediate Rock Module. After reviewing the applicant's file, including their climbing resume, the committee may require the applicant to complete one or more mentored climbs in the area(s) of their asserted equivalency.

Failure Policy

If a student fails a critical skills test during a field trip, they must notify the Intermediate Committee immediately. The Committee will discuss the reason with the student's examiner and field trip leader to determine why the student failed, and if they should be allowed to retest. If a student is allowed to retest they must retest in the same year the module was taken, and they will not be allowed to participate in subsequent modules until the retest is completed and the student has passed.

Intermediate Student Status Policy

Intermediate students may take up to 5 years to graduate from the whole Intermediate program, however, they must remain "active", both as climbers and instructors with The Mountaineers.

In order to be considered an "*active"* Intermediate student, the student needs to participate in at least three (3) activities per year, sponsored by either a Basic or Intermediate climbing committee, and at least one of which needs to be an instructional activity. Activities include participating in climbs, instructing at field trips, attending a climbing related seminar, or attending a course as a student. Students who do not maintain active status will be reviewed by the Intermediate Committee. They may have to retake some or all of their module depending on how long they were inactive.

Activity Make-Up Policy

Students must attend all required lectures and field trips for each module in the same year they signed up for the module, with the exception of the two summer ice field trips. If a student misses a lecture or field trip, without prior approval, the student will have to wait until the next time the same module is offered, which will be the following year.

Students who know that they may need to miss a lecture should petition the Intermediate Committee in advance for a "make up assignment." Please provide a reason for the expected absence. The Committee will determine if the reason is valid and if the lecture can or cannot be made up. If it is deemed that the lecture can be missed and "made up," an assignment will be provided to the student.

Students must attend the required field trip(s) for each module in the year they signed up for the module. They cannot be made up in any way. If you miss a field trip your status on the module will be "incomplete", and you will need to make-up the field trip the following year. In the interim you will not be authorized to be rope lead on basic climbs or participate on intermediate climbs, although you may continue to participate on basic climbs as a non-leading rope team member.

Physical Fitness Policy

All Intermediate students are expected to maintain a minimum level of physical fitness. Being fast and efficient in the alpine is matter of safety. Intermediate students who repeatedly hold a climbing party back due to lack of physical fitness may be put on probation until they have proven that they meet the above requirement.

Refund Policy

In order to receive a refund for a module, students must cancel from the module or notify the Intermediate Committee Chair prior to the first session of that module, if they cannot cancel. No refunds will be given after that time. No refunds will be given for failing a module. No refunds will be given at any time for the Qualifier.

Appendix 7: Other useful information

Learning to be Weight-Smart
By Bruce D. Sanchez

Introduction

As a Basic Student, you were required to bring equipment on climbs that often was, depending on the situation, "overkill" for a particular climb. One of the reasons is that as a Basic Student your climbing skills were not well formed, and some extra insurance in the form of a heavier, warmer sleeping bag or an extra jacket could prove life-saving in extraordinary circumstances.

In the Intermediate Course, you MUST be "weight-smart." The approaches are longer, slopes steeper, and climbing grades harder. A climber burdened down with an overly heavy pack, regardless of his or her physical strength, is a liability to their climbing party. You can save on weight in a number of ways:

- Leave equipment at home
- Use lighter equipment
- Use a piece of equipment for multiple purposes

The next section focuses on the second point. I will compare similar pieces of equipment with dramatically different weights.

Comparison of Sample Equipment Weights

The following pages detail a comparison of different equipment and their associated weight(s). The lightest and heaviest equipment is then grouped together to show the weight savings for a summer overnight rock climbing trip.

Note that the purpose of this exercise is NOT to make recommendations on what a given climber should take on a given trip. The equipment you carry will vary dramatically based on anticipated weather conditions, personal comfort levels for temperature and exposure, climbing ability, climbing route, etc. The purpose is to raise your consciousness about the cumulative effects of the equipment you take on a climb, and thereby help you make more intelligent decisions in your selection and purchasing of climbing equipment. Note also that I'm not making specific recommendations on manufacturer or model type.

For the less metrically-inclined, one ounce equals approximately 28 grams and one pound equals approximately 454 grams.

Hats	**Weight (grams)**
Lightweight Wool	76
Nylon Exterior, Pile lined, with Ear Flaps	114
Boots (all size 42)	**Weight (grams)**
La Sportiva Trango S Evo GTX	1522
Scarpa Freney GTX	1850

La Sportiva Nepal Evo GTX	2024
First Aid Kits	**Weight (grams)**
Small Kit – Adventure Medicals Day Tripper	558
REI Large Kit	850
Bivy Shelter	**Weight (grams)**
REI Minimalist Bivy	430
Outdoor Research Aurora Bivy	665
Black Diamond (Bibler) Tripod Bivy	1180
Packs	**Weight (grams)**
Black Diamond Speed 30 (30L)	1050
Wild Things Ricesac / Icesac (52L)	1330
Arcteryx Khamsin 50 (50L)	2100
Gregory Denali Pro (106L)	3510
Slings	**Weight (grams)**
Black Diamond Dyneema Single Slings (ten total)	364
1” Webbing Tied Single Runners (ten total)	590
Carabiners – full size	**Weight (grams)**
Wild Country Helium (ten total)	330
Black Diamond Ovals (ten total)	620
Rock Protection	**Weight (grams)**
Black Diamond Stoppers (#3-#12, ten total)	388
Black Diamond & other SLCD’s (small Metolius to #2 Camalot, ten total)	753
Headlamp	**Weight (grams)**
Petzl Tikka XP	95
Black Diamond Icon	188
Crampons	**Weight (grams)**
Stubai Ultralight	607
Grivel G12	950
Helmets	**Weight (grams)**
Petzl Ecrin Roc	445
Petzl Meteor III	235
Waterproofing	**Weight (grams)**
30 Gallon Plastic Garbage Sack	34
Nylon Pack Cover	125
Tents – 2 person	**Weight (grams)**
Black Diamond Firstlight (3 season)	1490
Integral Designs MK XL (4 Season)	1928
Mountain Hardwear Trango 2 (4 season)	4560
Sleeping Pads – regular length	**Weight (grams)**
Therm-a-Rest RidgeRest	400
Big Agnes Air Core Mummy	539
Rain Shells	**Weight (grams)**
Marmot Precip Jacket	367
Arcteryx Theta AR Jacket	548

Pile Pants and Top	Weight (grams)
200 Weight Pants and Top	1028
300 Weight Pants and Top	1240
Sleeping Bags – 20 degree F	**Weight (grams)**
Feathered Friends Swift (down)	964
Mountain Hardwear Lamina 20 (synthetic)	1346
Snow Shovel	**Weight (grams)**
Black Diamond	553
Voile	815
Water Purification	**Weight (grams)**
Iodine Tablets	28
Katdyne Water Filter	662

Sample Pack - Summer Overnight Rock Trip

Here's a comparison of the same equipment functionality but with significant weight savings. Note that not all items taken on the trip are listed here. For instance, extra clothing, food for the trip, map, rock shoes, etc. are left out. Evaluate the weight savings, however, with just the equipment listed below and apply the same thinking to your individual needs.

Heavy Pack		Light Pack	
Item	**Weight (g.)**	**Item**	**Weight (g)**
Gregory Denali Pro Pack	3510	Wild Things Icesac Pack	1330
Mountain Hardwear Lamina Bag	1346	Feathered Friends Swift Bag	964
Mountain Hardwear Trango 2 (50% total wt.)	1780	REI Minimalist Bivy Bag	430
Big Agnes Air Core Sleeping Pad	539	Therm-A-Rest RidgeRest Sleeping Pad	400
Arcteryx Theta AR Jacket	548	Marmot Precip Jacket	367
300 Weight Pile Pants and Top	1240	200 Weight Pile Pants and Top	1028
REI Large First Aid Kit	850	Small First Aid kit	558
SLCDs (ten total)	753	Stoppers (ten total)	388
Black Diamond Oval biners (ten total)	620	Wild Country Helium biners (10 total)	330
Petzl Ecrin Helmet	445	Petzl Meteor III Helmet	235
1" Webbing Slings (ten total)	590	Black Diamond Dyneema Slings (ten total)	364
Black Diamond Icon Headlamp	188	Petzl Tikka XP Headlamp	148
Pile Hat w/ear flaps	114	Lightweight wool hat	76
Katadyne Water Filter	662	Iodine Tablets	28
Total	13185 grams 29 lbs. 1.1oz	Total	6646 grams 14 lbs 10.4oz

Total Savings = 6539 grams, or approximately 14 lbs 7oz. Which pack would you prefer to carry?